```
=> file biosis caba caplus lifesci medline
=> e liu jun/au
E1            2     LIU JUMMING/AU
E2            1     LIU JUMN HUA/AU
E3         3793 --> LIU JUN/AU
E4            9     LIU JUN AN/AU
E5            1     LIU JUN ANG/AU
E6            1     LIU JUN BAO/AU
E7            4     LIU JUN BIN/AU
E8            2     LIU JUN BING/AU
E9           21     LIU JUN BO/AU
E10           1     LIU JUN CHANG/AU
E11           6     LIU JUN CHAO/AU
E12           1     LIU JUN CHEN/AU

=> s e3 and BCG
L1           11 "LIU JUN"/AU AND BCG

=> dup rem l1
PROCESSING COMPLETED FOR L1
L2            4 DUP REM L1 (7 DUPLICATES REMOVED)

=> d bib ab kwic 1-
YOU HAVE REQUESTED DATA FROM 4 ANSWERS - CONTINUE? Y/(N):y

L2   ANSWER 1 OF 4  BIOSIS  COPYRIGHT (c) 2008 The Thomson Corporation  on STN
     DUPLICATE 1
AN   2008:84494  BIOSIS <<LOGINID::20080329>>
DN   PREV200800088178
TI   Differential productions of lipid virulence factors among   ***BCG***
     vaccine strains and implications on   ***BCG***   safety.
AU   Chen, Jeffrey M.; Islam, Salim T.; Ren, Huiping;   ***Liu, Jun***
     [Reprint Author]
CS   Univ Toronto, Dept Med Genet and Microbiol, 4382 Med Sci Bldg,1 Kings Coll
     Circle, Toronto, ON M5S 1A8, Canada
     jun.liu@utoronto.ca
SO   Vaccine, (NOV 23 2007) Vol. 25, No. 48, pp. 8114-8122.
     CODEN: VACCDE. ISSN: 0264-410X.
DT   Article
LA   English
ED   Entered STN: 23 Jan 2008
     Last Updated on STN: 23 Jan 2008
AB   Safety of   ***BCG***   is a major concern in countries with a high burden
     of HlV/AlDS.  Current   ***BCG***   vaccine comprises of a heterogeneous
     group of substrains showing genotypic differences.  The impact of these
     differences on   ***BCG***   efficacy and safety remains unknown.  Here we
     show that three   ***BCG***   substrains,   ***BCG***  -Japan, -Moreau,
     and -Glaxo, do not produce phthiocerol dimycocerosates (PDIMs) and
     phenolic glycolipids (PGLs), two cell wall lipids known to be important
     for the virulence of Mycobacterium tuberculosis and Mycobacterium bovis,
     suggesting that these   ***BCG***   strains are more attenuated than
     others.  We found that there is a good correlation between the ability of
       ***BCG***   strains to produce these two lipids and the propensity of
       ***BCG***   to induce complications following vaccination in children,
     which provides a partial explanation for the molecular mechanisms of
       ***BCG***   reactogenicity.  Our finding has important implications for
     national immunization programmes particularly in HIV endemic countries.
```

We suggest that PDIMs/PGLs analysis could offer a practical means for assessing the safety of various ***BCG*** vaccine strains currently used in the world. (c) 2007 Elsevier Ltd. All rights reserved.

TI Differential productions of lipid virulence factors among ***BCG*** vaccine strains and implications on ***BCG*** safety.

AU Chen, Jeffrey M.; Islam, Salim T.; Ren, Huiping; ***Liu, Jun*** [Reprint Author]

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IT . . .
disease, infectious disease, immune system disease, AIDS Acquired Immunodeficiency Syndrome (MeSH)

IT Chemicals & Biochemicals
lipid; phenolic glycolipid; Bacillus Calmette-Guerin vaccine [***BCG*** vaccine]: immunologic-drug, efficacy, safety

L2 ANSWER 2 OF 4 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN DUPLICATE 2

AN 2004:338289 BIOSIS <<LOGINID::20080329>>

DN PREV200400338470

TI Impact of methoxymycolic acid production by mycobacterium bovis ***BCG*** Vaccines.

AU Belley, Adam; Alexander, David; Di Pietrantonio, Tania; Girard, Manon; Jones, Joses; Schurr, Erwin; ***Liu, Jun*** ; Sherman, David R.; Behr, Marcel A. [Reprint Author]

CS Div Infect Dis and Med Microbiol, Montreal Gen Hosp, 1650 Cedar Ave, Montreal, PQ, H3G 1A4, Canada
marcel.behr@mcgill.ca

SO Infection and Immunity, (May 2004) Vol. 72, No. 5, pp. 2803-2809. print. ISSN: 0019-9567 (ISSN print).

DT Article

LA English

ED Entered STN: 11 Aug 2004
Last Updated on STN: 11 Aug 2004

AB ***BCG*** vaccines are a family of closely related daughter strains of an attenuated isolate of Mycobacterium bovis derived by in vitro passage from 1908 to 1921. During subsequent laboratory propagation of the vaccine strain until its lyophilization in 1961, ***BCG*** Pasteur underwent at least seven further genomic mutations. The impact of these mutations on the properties of the vaccine is currently unknown. One mutation, a glycine-to-aspartic acid substitution in the mmaA3 gene,

occurred between 1927 and 1931 and impairs methoxymycolic acid synthesis in ***BCG*** strains obtained from the Pasteur Institute after this period. Mycolic acids of the cell wall are classified into three functional groups (alpha-, methoxy-, and ketomycolic acids), and together these lipids form a highly specialized permeability barrier around the bacterium. To explore the impact of methoxymycolic acid production by ***BCG*** strains, we complemented the functional gene of mmaA3 into ***BCG*** Denmark and tested a number of in vitro and in vivo phenotypes. Surprisingly, restoration of methoxymycolic acids alone had no effect on cell wall permeability, resistance to antibiotics, or growth in cultured macrophages and C57BL/6 mice. Our results demonstrate that the loss of methoxymycolic acid production did not apparently affect the virulence of ***BCG*** strains.

TI Impact of methoxymycolic acid production by mycobacterium bovis ***BCG*** Vaccines.

AU Belley, Adam; Alexander, David; Di Pietrantonio, Tania; Girard, Manon; Jones, Joses; Schurr, Erwin; ***Liu, Jun*** ; Sherman, David R.; Behr, Marcel A. [Reprint Author]

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IT Major Concepts
Immune System (Chemical Coordination and Homeostasis); Infection

IT Chemicals & Biochemicals
methoxymycolic acid: ***BCG*** vaccine production, vaccine response impact

ORGN . . .
Vertebrates

ORGN Classifier
Mycobacteriaceae 08881

Super Taxa
Mycobacteria; Actinomycetes and Related Organisms; Eubacteria; Bacteria; Microorganisms

Organism Name
Mycobacterium bovis (species) [***BCG*** (common)]: pathogen, immune response, vaccine

Taxa Notes
Bacteria, Eubacteria, Microorganisms

L2 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2008 ACS on STN
AN 2003:855955 CAPLUS <<LOGINID::20080329>>
DN 139:363579

TI Tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase

IN ***Liu, Jun*** ; Chen, Jeffrey; Alexander, David

PA Can.

SO PCT Int. Appl., 78 pp.
CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003089462	A2	20031030	WO 2003-CA566	20030416
	WO 2003089462	A3	20040521		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	CA 2481108	A1	20031030	CA 2003-2481108	20030416
	AU 2003218838	A1	20031103	AU 2003-218838	20030416
	GB 2403477	A	20050105	GB 2004-25165	20030416
	GB 2403477	B	20060823		
	CN 1703513	A	20051130	CN 2003-802276	20030416
	JP 2006508633	T	20060316	JP 2003-586182	20030416
	ZA 2004008344	A	20050907	ZA 2004-8344	20041014
	US 2007264286	A1	20071115	US 2006-511718	20060728
PRAI	US 2002-372450P	P	20020416		
	WO 2003-CA566	W	20030416		

AB The invention relates to a live recombinant Mycobacterium bovis- ***BCG*** strain comprising a nucleic acid capable of expression, the nucleic acid encoding at least one protein or polypeptide that exhibits alanine dehydrogenase activity, glutamine synthetase activity, or serine dehydratase activity. The recombinant alanine dehydrogenase, serine dehydratase and glutamine synthetase are derived from Mycobacterium tuberculosis.

TI Tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase

IN ***Liu, Jun*** ; Chen, Jeffrey; Alexander, David

AB The invention relates to a live recombinant Mycobacterium bovis- ***BCG*** strain comprising a nucleic acid capable of expression, the nucleic acid encoding at least one protein or polypeptide that exhibits. . .

ST recombinant Mycobacterium bovis ***BCG*** strain tuberculosis vaccine; alanine dehydrogenase serine dehydratase glutamine synthetase ***BCG*** tuberculosis vaccine

IT Immunostimulants
(adjuvants; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT Drug delivery systems

(carriers; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT Proteins
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(recombinant; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT Antitumor agents
Bladder, neoplasm
Bos taurus
Culture media
DNA sequences
Human
Mammalia
Molecular cloning
Mycobacterium
Mycobacterium ***BCG***
Mycobacterium tuberculosis
Pathogen
Protein sequences
Test kits
Tuberculosis
Vaccines
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT Gene, microbial
Nucleic acids
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT Antigens
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT 619345-18-5P 619345-20-9P 619345-21-0P 619345-22-1P 619345-23-2P 619345-24-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(amino acid sequence; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT 619345-19-6
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(amino acid sequence; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT 619345-25-4P 619345-27-6P 619345-28-7P 619345-29-8P 619345-30-1P 619345-31-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(nucleotide sequence; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT 619345-26-5, DNA (Mycobacterium bovis gene ald)
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(nucleotide sequence; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT 7440-44-0, Carbon, biological studies 7727-37-9, Nitrogen, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(source; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT 9014-27-1P, Serine dehydratase 9023-70-5P, Glutamine synthetase 9029-06-5P, Alanine dehydrogenase 175380-16-2P, GenBank Z70692 193398-67-3P, GenBank Z97193 196526-70-2P, GenBank U87280 199902-12-0P, GenBank AL008883 202943-88-2P, GenBank AL021428 335511-06-3P, GenBank AE006919 335512-36-2P, GenBank AE007049 335512-60-2P, GenBank AE007073 335513-04-7P, GenBank AE007117
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT 50-99-7, Dextrose, biological studies 56-41-7, L-Alanine, biological studies 56-45-1, L-Serine, biological studies 56-81-5, Glycerol, biological studies 71-00-1, L-Histidine, biological studies 77-92-9, Citric acid, biological studies 338-69-2, D-Alanine 7439-89-6, Iron, biological studies 7439-95-4, Magnesium, biological studies 14808-79-8, Sulfate, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

L2 ANSWER 4 OF 4 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN DUPLICATE 3
AN 2003:127824 BIOSIS <<LOGINID::20080329>>
DN PREV200300127824
TI Mycobacterium bovis ***BCG*** vaccines exhibit defects in alanine and serine catabolism.
AU Chen, Jeffrey M.; Alexander, David C.; Behr, Marcel A.; ***Liu, Jun*** [Reprint Author]
CS Department of Medical Genetics and Microbiology, University of Toronto, 1 King's College Circle, 4382 Medical Sciences Building, Toronto, ON, M5S 1A8, Canada
jun.liu@utoronto.ca

SO Infection and Immunity, (February 2003) Vol. 71, No. 2, pp. 708-716.
print.
ISSN: 0019-9567 (ISSN print).
DT Article
LA English
ED Entered STN: 5 Mar 2003
Last Updated on STN: 5 Mar 2003
AB Mycobacterium bovis ***BCG*** is the only accepted vaccine for the prevention of tuberculosis (TB) in humans. ***BCG*** is a live vaccine, and induction of immunity to TB requires productive infection of the host by ***BCG*** . However, ***BCG*** is not a satisfactory vaccine, because it fails to protect against pulmonary TB in adults. In this study, we found that ***BCG*** strains cannot utilize many naturally occurring amino acids as the sole nitrogen source for growth. This defect is caused, at least partially, by the lack of functional metabolic enzymes. All ***BCG*** strains are unable to catabolize L-alanine or D-alanine due to a frameshift mutation in the L-alanine dehydrogenase gene (ald). Some ***BCG*** strains, such as ***BCG*** -Pasteur and ***BCG*** -Frappier, cannot catabolize L-serine, apparently due to inadequate expression of L-serine deaminase (sdaA). We also found that undegraded alanine and serine inhibit the growth of ***BCG*** through blockage of glutamine synthetase. These results suggest that ***BCG*** strains are limited in nitrogen metabolic capacity and predict defects that may restrict multiplication and persistence of the live vaccine within the host.
TI Mycobacterium bovis ***BCG*** vaccines exhibit defects in alanine and serine catabolism.
AU Chen, Jeffrey M.; Alexander, David C.; Behr, Marcel A.; ***Liu, Jun***
[Reprint Author]
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IT . . .
disease
Tuberculosis, Pulmonary (MeSH)
IT Diseases
tuberculosis: bacterial disease
Tuberculosis (MeSH)
IT Chemicals & Biochemicals
D-alanine; L-alanine; L-alanine dehydrogenase; L-serine; Mycobacterium bovis ***BCG*** vaccines: immunologic-drug, immunostimulant-drug; glutamine synthetase [EC 6.3.1.2]

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E1            1     CHEN JEFFERY J/AU
E2            2     CHEN JEFFERY K/AU
E3           39 --> CHEN JEFFREY/AU
E4           19     CHEN JEFFREY C/AU
E5            1     CHEN JEFFREY CHUANG FEI/AU
E6            4     CHEN JEFFREY E/AU
E7            6     CHEN JEFFREY E K/AU
E8            1     CHEN JEFFREY F/AU
E9           15     CHEN JEFFREY J/AU
E10           2     CHEN JEFFREY L/AU
E11          20     CHEN JEFFREY M/AU
E12           1     CHEN JEFFREY S/AU

=> s e1-e12 and BCG
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                OR "CHEN JEFFREY C"/AU OR "CHEN JEFFREY CHUANG FEI"/AU OR "CHEN
                JEFFREY E"/AU OR "CHEN JEFFREY E K"/AU OR "CHEN JEFFREY F"/AU
               OR "CHEN JEFFREY J"/AU OR "CHEN JEFFREY L"/AU OR "CHEN JEFFREY
               M"/AU OR "CHEN JEFFREY S"/AU) AND BCG

=> dup rem l3
PROCESSING COMPLETED FOR L3
L4            3 DUP REM L3 (4 DUPLICATES REMOVED)

=> d bib ab kwic 1-
YOU HAVE REQUESTED DATA FROM 3 ANSWERS - CONTINUE? Y/(N):y

L4   ANSWER 1 OF 3  BIOSIS  COPYRIGHT (c) 2008 The Thomson Corporation  on STN
     DUPLICATE 1
AN   2008:84494  BIOSIS <<LOGINID::20080329>>
DN   PREV200800088178
TI   Differential productions of lipid virulence factors among   ***BCG***
     vaccine strains and implications on   ***BCG***   safety.
AU     ***Chen, Jeffrey M.***  ; Islam, Salim T.; Ren, Huiping; Liu, Jun
     [Reprint Author]
CS   Univ Toronto, Dept Med Genet and Microbiol, 4382 Med Sci Bldg,1 Kings Coll
     Circle, Toronto, ON M5S 1A8, Canada
     jun.liu@utoronto.ca
SO   Vaccine, (NOV 23 2007) Vol. 25, No. 48, pp. 8114-8122.
     CODEN: VACCDE. ISSN: 0264-410X.
DT   Article
LA   English
ED   Entered STN: 23 Jan 2008
     Last Updated on STN: 23 Jan 2008
AB   Safety of   ***BCG***   is a major concern in countries with a high burden
     of HlV/AlDS.  Current   ***BCG***   vaccine comprises of a heterogeneous
     group of substrains showing genotypic differences.  The impact of these
     differences on   ***BCG***   efficacy and safety remains unknown.  Here we
     show that three   ***BCG***   substrains,   ***BCG***  -Japan, -Moreau,
     and -Glaxo, do not produce phthiocerol dimycocerosates (PDIMs) and
     phenolic glycolipids (PGLs), two cell wall lipids known to be important
     for the virulence of Mycobacterium tuberculosis and Mycobacterium bovis,
     suggesting that these   ***BCG***   strains are more attenuated than
     others.  We found that there is a good correlation between the ability of
```

BCG strains to produce these two lipids and the propensity of ***BCG*** to induce complications following vaccination in children, which provides a partial explanation for the molecular mechanisms of ***BCG*** reactogenicity. Our finding has important implications for national immunization programmes particularly in HIV endemic countries. We suggest that PDIMs/PGLs analysis could offer a practical means for assessing the safety of various ***BCG*** vaccine strains currently used in the world. (c) 2007 Elsevier Ltd. All rights reserved.

TI Differential productions of lipid virulence factors among ***BCG*** vaccine strains and implications on ***BCG*** safety.

AU ***Chen, Jeffrey M.*** ; Islam, Salim T.; Ren, Huiping; Liu, Jun [Reprint Author]

AB Safety of ***BCG*** is a major concern in countries with a high burden of HIV/AIDS. Current ***BCG*** vaccine comprises of a heterogeneous group of substrains showing genotypic differences. The impact of these differences on ***BCG*** efficacy and safety remains unknown. Here we show that three ***BCG*** substrains, ***BCG*** -Japan, -Moreau, and -Glaxo, do not produce phthiocerol dimycocerosates (PDIMs) and phenolic glycolipids (PGLs), two cell wall lipids known to be important for the virulence of Mycobacterium tuberculosis and Mycobacterium bovis, suggesting that these ***BCG*** strains are more attenuated than others. We found that there is a good correlation between the ability of ***BCG*** strains to produce these two lipids and the propensity of ***BCG*** to induce complications following vaccination in children, which provides a partial explanation for the molecular mechanisms of ***BCG*** reactogenicity. Our finding has important implications for national immunization programmes particularly in HIV endemic countries. We suggest that PDIMs/PGLs analysis could offer a practical means for assessing the safety of various ***BCG*** vaccine strains currently used in the world. (c) 2007 Elsevier Ltd. All rights reserved.

IT . . .
disease, infectious disease, immune system disease, AIDS
Acquired Immunodeficiency Syndrome (MeSH)

IT Chemicals & Biochemicals
lipid; phenolic glycolipid; Bacillus Calmette-Guerin vaccine [***BCG*** vaccine]: immunologic-drug, efficacy, safety

L4 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2008 ACS on STN

AN 2003:855955 CAPLUS <<LOGINID::20080329>>

DN 139:363579

TI Tuberculosis vaccines including recombinant Mycobacterium bovis-***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase

IN Liu, Jun; ***Chen, Jeffrey*** ; Alexander, David

PA Can.

SO PCT Int. Appl., 78 pp.
CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003089462	A2	20031030	WO 2003-CA566	20030416
	WO 2003089462	A3	20040521		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,

LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT,
TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,
FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR,
BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

	CA 2481108	A1	20031030	CA 2003-2481108	20030416
	AU 2003218838	A1	20031103	AU 2003-218838	20030416
	GB 2403477	A	20050105	GB 2004-25165	20030416
	GB 2403477	B	20060823		
	CN 1703513	A	20051130	CN 2003-802276	20030416
	JP 2006508633	T	20060316	JP 2003-586182	20030416
	ZA 2004008344	A	20050907	ZA 2004-8344	20041014
	US 2007264286	A1	20071115	US 2006-511718	20060728
PRAI	US 2002-372450P	P	20020416		
	WO 2003-CA566	W	20030416		

AB The invention relates to a live recombinant Mycobacterium bovis- ***BCG*** strain comprising a nucleic acid capable of expression, the nucleic acid encoding at least one protein or polypeptide that exhibits alanine dehydrogenase activity, glutamine synthetase activity, or serine dehydratase activity. The recombinant alanine dehydrogenase, serine dehydratase and glutamine synthetase are derived from Mycobacterium tuberculosis.

TI Tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase

IN Liu, Jun; ***Chen, Jeffrey*** ; Alexander, David

AB The invention relates to a live recombinant Mycobacterium bovis- ***BCG*** strain comprising a nucleic acid capable of expression, the nucleic acid encoding at least one protein or polypeptide that exhibits. . .

ST recombinant Mycobacterium bovis ***BCG*** strain tuberculosis vaccine; alanine dehydrogenase serine dehydratase glutamine synthetase ***BCG*** tuberculosis vaccine

IT Immunostimulants
(adjuvants; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT Drug delivery systems
(carriers; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT Proteins
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(recombinant; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT Antitumor agents
Bladder, neoplasm
Bos taurus
Culture media
DNA sequences
Human
Mammalia

Molecular cloning
Mycobacterium
Mycobacterium ***BCG***
Mycobacterium tuberculosis
Pathogen
Protein sequences
Test kits
Tuberculosis
Vaccines
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT Gene, microbial
Nucleic acids
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT Antigens
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT 619345-18-5P 619345-20-9P 619345-21-0P 619345-22-1P 619345-23-2P 619345-24-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(amino acid sequence; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT 619345-19-6
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(amino acid sequence; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT 619345-25-4P 619345-27-6P 619345-28-7P 619345-29-8P 619345-30-1P 619345-31-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(nucleotide sequence; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT 619345-26-5, DNA (Mycobacterium bovis gene ald)
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(nucleotide sequence; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT 7440-44-0, Carbon, biological studies 7727-37-9, Nitrogen, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES

(Uses)
(source; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT 9014-27-1P, Serine dehydratase 9023-70-5P, Glutamine synthetase 9029-06-5P, Alanine dehydrogenase 175380-16-2P, GenBank Z70692 193398-67-3P, GenBank Z97193 196526-70-2P, GenBank U87280 199902-12-0P, GenBank AL008883 202943-88-2P, GenBank AL021428 335511-06-3P, GenBank AE006919 335512-36-2P, GenBank AE007049 335512-60-2P, GenBank AE007073 335513-04-7P, GenBank AE007117
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT 50-99-7, Dextrose, biological studies 56-41-7, L-Alanine, biological studies 56-45-1, L-Serine, biological studies 56-81-5, Glycerol, biological studies 71-00-1, L-Histidine, biological studies 77-92-9, Citric acid, biological studies 338-69-2, D-Alanine 7439-89-6, Iron, biological studies 7439-95-4, Magnesium, biological studies 14808-79-8, Sulfate, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

L4 ANSWER 3 OF 3 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN
DUPLICATE 2
AN 2003:127824 BIOSIS <<LOGINID::20080329>>
DN PREV200300127824
TI Mycobacterium bovis ***BCG*** vaccines exhibit defects in alanine and serine catabolism.
AU ***Chen, Jeffrey M.*** ; Alexander, David C.; Behr, Marcel A.; Liu, Jun [Reprint Author]
CS Department of Medical Genetics and Microbiology, University of Toronto, 1 King's College Circle, 4382 Medical Sciences Building, Toronto, ON, M5S 1A8, Canada
jun.liu@utoronto.ca
SO Infection and Immunity, (February 2003) Vol. 71, No. 2, pp. 708-716. print.
ISSN: 0019-9567 (ISSN print).
DT Article
LA English
ED Entered STN: 5 Mar 2003
Last Updated on STN: 5 Mar 2003
AB Mycobacterium bovis ***BCG*** is the only accepted vaccine for the prevention of tuberculosis (TB) in humans. ***BCG*** is a live vaccine, and induction of immunity to TB requires productive infection of the host by ***BCG*** . However, ***BCG*** is not a satisfactory vaccine, because it fails to protect against pulmonary TB in adults. In this study, we found that ***BCG*** strains cannot utilize many naturally occurring amino acids as the sole nitrogen source for growth. This defect is caused, at least partially, by the lack of functional metabolic enzymes. All ***BCG*** strains are unable to catabolize L-alanine or D-alanine due to a frameshift mutation in the L-alanine

dehydrogenase gene (ald). Some ***BCG*** strains, such as ***BCG*** -Pasteur and ***BCG*** -Frappier, cannot catabolize L-serine, apparently due to inadequate expression of L-serine deaminase (sdaA). We also found that undegraded alanine and serine inhibit the growth of ***BCG*** through blockage of glutamine synthetase. These results suggest that ***BCG*** strains are limited in nitrogen metabolic capacity and predict defects that may restrict multiplication and persistence of the live vaccine within the host.

TI Mycobacterium bovis ***BCG*** vaccines exhibit defects in alanine and serine catabolism.

AU ***Chen, Jeffrey M.*** ; Alexander, David C.; Behr, Marcel A.; Liu, Jun [Reprint Author]

AB Mycobacterium bovis ***BCG*** is the only accepted vaccine for the prevention of tuberculosis (TB) in humans. ***BCG*** is a live vaccine, and induction of immunity to TB requires productive infection of the host by ***BCG*** . However, ***BCG*** is not a satisfactory vaccine, because it fails to protect against pulmonary TB in adults. In this study, we found that ***BCG*** strains cannot utilize many naturally occurring amino acids as the sole nitrogen source for growth. This defect is caused, at least partially, by the lack of functional metabolic enzymes. All ***BCG*** strains are unable to catabolize L-alanine or D-alanine due to a frameshift mutation in the L-alanine dehydrogenase gene (ald). Some ***BCG*** strains, such as ***BCG*** -Pasteur and ***BCG*** -Frappier, cannot catabolize L-serine, apparently due to inadequate expression of L-serine deaminase (sdaA). We also found that undegraded alanine and serine inhibit the growth of ***BCG*** through blockage of glutamine synthetase. These results suggest that ***BCG*** strains are limited in nitrogen metabolic capacity and predict defects that may restrict multiplication and persistence of the live vaccine. . .

IT . . .
disease
Tuberculosis, Pulmonary (MeSH)

IT Diseases
tuberculosis: bacterial disease
Tuberculosis (MeSH)

IT Chemicals & Biochemicals
D-alanine; L-alanine; L-alanine dehydrogenase; L-serine; Mycobacterium bovis ***BCG*** vaccines: immunologic-drug, immunostimulant-drug; glutamine synthetase [EC 6.3.1.2]

=> e alexander david/au

E1	2		ALEXANDER DAVE B/AU
E2	8		ALEXANDER DAVE M/AU
E3	74	-->	ALEXANDER DAVID/AU
E4	31		ALEXANDER DAVID A/AU
E5	1		ALEXANDER DAVID ALAN/AU
E6	1		ALEXANDER DAVID ALLEN/AU
E7	1		ALEXANDER DAVID ANDREW/AU
E8	1		ALEXANDER DAVID AUSTIN/AU
E9	36		ALEXANDER DAVID B/AU
E10	1		ALEXANDER DAVID BEDELL/AU
E11	1		ALEXANDER DAVID BRUCE/AU
E12	57		ALEXANDER DAVID C/AU

=> s e1-12 and BCG

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L5          15 ("ALEXANDER DAVE B"/AU OR "ALEXANDER DAVE M"/AU OR "ALEXANDER
               DAVID"/AU OR "ALEXANDER DAVID A"/AU OR "ALEXANDER DAVID ALAN"/AU
                OR "ALEXANDER DAVID ALLEN"/AU OR "ALEXANDER DAVID ANDREW"/AU
               OR "ALEXANDER DAVID AUSTIN"/AU OR "ALEXANDER DAVID B"/AU OR "ALE
               XANDER DAVID BEDELL"/AU OR "ALEXANDER DAVID BRUCE"/AU OR "ALEXAN
               DER DAVID C"/AU) AND BCG

=> dup rem l5
PROCESSING COMPLETED FOR L5
L6             6 DUP REM L5 (9 DUPLICATES REMOVED)

=> d bib ab kwic 1-
YOU HAVE REQUESTED DATA FROM 6 ANSWERS - CONTINUE? Y/(N):y

L6   ANSWER 1 OF 6  BIOSIS  COPYRIGHT (c) 2008 The Thomson Corporation  on STN
     DUPLICATE 1
AN   2007:564157  BIOSIS <<LOGINID::20080329>>
DN   PREV200700566212
TI   Rv1773 is a transcriptional repressor deleted from   ***BCG***  -Pasteur.
AU     ***Alexander, David C.***  ; Behr, Marcel A. [Reprint Author]
CS   Montreal Gen Hosp, Div Infect Dis and Med Microbiol, 1650 Cedar Ave,
     Montreal, PQ H3G 1A4, Canada
     marcel.behr@mcgill.ca
SO   Tuberculosis (Amsterdam), (SEP 2007) Vol. 87, No. 5, pp. 421-425.
     ISSN: 1472-9792.
DT   Article
LA   English
ED   Entered STN: 31 Oct 2007
     Last Updated on STN: 31 Oct 2007
AB   Mycobacterium bovis Bacille Calmette-Guerin (  ***BCG***  ) is a live
     attenuated vaccine for the prevention of tuberculosis.  Transcriptome
     comparison reveals dysegulated expression of two genes, Rv1774 and Rv1775,
     exclusively in the Pasteur strain of   ***BCG***  .  We show that these
     genes form a bicistronic operon regulated by Rv1773, a transcriptional
     repressor deleted during the in vitro evolution of   ***BCG***  . (c) 2007
     Elsevier Ltd.  All rights reserved.
TI   Rv1773 is a transcriptional repressor deleted from   ***BCG***  -Pasteur.
AU     ***Alexander, David C.***  ; Behr, Marcel A. [Reprint Author]
AB   Mycobacterium bovis Bacille Calmette-Guerin (  ***BCG***  ) is a live
     attenuated vaccine for the prevention of tuberculosis.  Transcriptome
     comparison reveals dysegulated expression of two genes, Rv1774 and Rv1775,
     exclusively in the Pasteur strain of   ***BCG***  .  We show that these
     genes form a bicistronic operon regulated by Rv1773, a transcriptional
     repressor deleted during the in vitro evolution of   ***BCG***  . (c) 2007
     Elsevier Ltd.  All rights reserved.

L6   ANSWER 2 OF 6  CAPLUS  COPYRIGHT 2008 ACS on STN
AN   2006:1033917  CAPLUS <<LOGINID::20080329>>
DN   145:395457
TI   Improved tuberculosis vaccine containing a start codon mutation in the
     .sigma. factor gene sigK of Mycobacterium bovis   ***BCG***   strains
IN   Behr, Marcel; Mostowy, Serge; Charlet, Danielle;   ***Alexander, David***
PA   Mcgill University, Can.
SO   PCT Int. Appl., 74pp.
     CODEN: PIXXD2
DT   Patent
LA   English
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FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006102767	A1	20061005	WO 2006-CA503	20060403
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	CA 2603298	A1	20061005	CA 2006-2603298	20060403
	EP 1863914	A1	20071212	EP 2006-721759	20060403
	R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR				
PRAI	US 2005-667243P	P	20050401		
	WO 2006-CA503	W	20060403		

AB The present invention relates to an improved tuberculosis (TB) vaccine and further includes a method for detg. the potency of TB strains. Mycobacterium bovis Bacille Calmette-Guerin (***BCG***) strains are genetically and phenotypically heterogeneous. Expression of the antigenic proteins MPB70 and MPB83 is known to vary considerably across ***BCG*** strains; however, the reason for this phenotypic difference has remained unknown. Because the history of ***BCG*** strain dissemination has been recorded, it has been possible to precisely det. the chronol. of specific genetic changes in ***BCG*** strains. A no. of these mutations affect putative regulatory genes, so it was hypothesized that a mutation in a regulatory gene was likely responsible for the variable prodn. of MPB70 and MPB83. The prodn. of MPB70 and MPB83 across a panel of ***BCG*** strains was therefore detd., in order to assign the chronol. of this phenotypic change and thereby guide studies towards identifying the responsible mutation. Interestingly, the data implicate a start codon mutation in the M. tuberculosis .sigma.K factor (Rv0445c or sigK gene) and point to a highly specific link between sigK and expression of MPB70 and MPB83.

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Improved tuberculosis vaccine containing a start codon mutation in the .sigma. factor gene sigK of Mycobacterium bovis ***BCG*** strains

IN Behr, Marcel; Mostowy, Serge; Charlet, Danielle; ***Alexander, David***

AB . . . improved tuberculosis (TB) vaccine and further includes a method for detg. the potency of TB strains. Mycobacterium bovis Bacille Calmette-Guerin (***BCG***) strains are genetically and phenotypically heterogeneous. Expression of the antigenic proteins MPB70 and MPB83 is known to vary considerably across ***BCG*** strains; however, the reason for this phenotypic difference has remained unknown. Because the history of ***BCG*** strain dissemination has been recorded, it has been possible to precisely det. the chronol. of specific genetic changes in ***BCG*** strains. A no. of these mutations affect putative regulatory genes, so it was hypothesized that a mutation in a regulatory. . . likely responsible for the variable prodn. of MPB70 and MPB83. The prodn. of MPB70 and MPB83 across a panel of ***BCG*** strains was

therefore detd., in order to assign the chronol. of this phenotypic change and thereby guide studies towards identifying. . .

ST sigmaK gene mutation Mycobacterium ***BCG*** tuberculosis vaccine; antigenic protein MPB70 MPB83 expression sigma factor Mycobacterium; sequence gene sigK transcription factor mutation Mycobacterium

IT Antigens
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(MPB70; improved tuberculosis vaccine contg. a start codon mutation in the .sigma. factor gene sigK of Mycobacterium bovis ***BCG*** strains)

IT Antigens
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(MPB83; improved tuberculosis vaccine contg. a start codon mutation in the .sigma. factor gene sigK of Mycobacterium bovis ***BCG*** strains)

IT Bison
Bos taurus
Capra
Cervidae
DNA microarray technology
DNA sequences
Elk
Human
Mammalia
Molecular cloning
Mutation
Mycobacterium ***BCG***
Mycobacterium africanum
Mycobacterium bovis
Mycobacterium canettii
Mycobacterium caprae
Mycobacterium microti
Mycobacterium pinnipedii
Mycobacterium tuberculosis
Ovis aries
Protein sequences
Sus scrofa domestica
Tuberculosis
Vaccines
(improved tuberculosis vaccine contg. a start codon mutation in the .sigma. factor gene sigK of Mycobacterium bovis ***BCG*** strains)

IT Probes (nucleic acid)
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(improved tuberculosis vaccine contg. a start codon mutation in the .sigma. factor gene sigK of Mycobacterium bovis ***BCG*** strains)

IT Gene, microbial
RL: ADV (Adverse effect, including toxicity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(sigK; improved tuberculosis vaccine contg. a start codon mutation in the .sigma. factor gene sigK of Mycobacterium bovis ***BCG*** strains)

IT Genetic polymorphism
(single nucleotide; improved tuberculosis vaccine contg. a start codon mutation in the .sigma. factor gene sigK of Mycobacterium bovis ***BCG*** strains)

IT Transcription factors

RL: ADV (Adverse effect, including toxicity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.sigma.K; improved tuberculosis vaccine contg. a start codon mutation in the .sigma. factor gene sigK of Mycobacterium bovis ***BCG*** strains)

IT 911336-42-0 911336-44-2
RL: ADV (Adverse effect, including toxicity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(amino acid sequence; improved tuberculosis vaccine contg. a start codon mutation in the .sigma. factor gene sigK of Mycobacterium bovis ***BCG*** strains)

IT 911336-41-9, DNA (Mycobacterium ***BCG*** gene sigK) 911336-43-1
RL: ADV (Adverse effect, including toxicity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(nucleotide sequence; improved tuberculosis vaccine contg. a start codon mutation in the .sigma. factor gene sigK of Mycobacterium bovis ***BCG*** strains)

IT 911336-48-6 911336-49-7 911336-50-0 911336-51-1 911336-52-2
911336-53-3 911336-54-4 911336-55-5 911336-56-6 911336-57-7
911336-58-8 911336-59-9 911336-60-2 911336-61-3 911336-62-4
911336-63-5 911336-64-6 911336-65-7 911336-66-8 911336-67-9
911336-68-0 911336-69-1 911336-70-4 911336-71-5 911336-72-6
911336-73-7 911336-74-8 911336-75-9 911336-76-0 911336-77-1
911336-78-2 911336-79-3 911336-80-6 911336-81-7 911336-82-8
911336-83-9 911336-84-0 911336-85-1 911336-86-2 911336-87-3
911336-88-4 911336-89-5 911336-90-8 911336-91-9 911336-92-0
911336-93-1 911336-94-2 911336-95-3 911336-96-4 911336-97-5
911336-98-6
RL: PRP (Properties)
(unclaimed nucleotide sequence; improved tuberculosis vaccine contg. a start codon mutation in the .sigma. factor gene sigK of Mycobacterium bovis ***BCG*** strains)

L6 ANSWER 3 OF 6 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN
DUPLICATE 2
AN 2005:273753 BIOSIS <<LOGINID::20080329>>
DN PREV200510060685
TI Reduced expression of antigenic proteins MPB70 and MPB83 in Mycobacterium bovis ***BCG*** strains due to a start codon mutation in sigK.
AU Charlet, Danielle; Mostowy, Serge; ***Alexander, David*** ; Sit, Louis; Wiker, Harald G.; Behr, Marcel A. [Reprint Author]
CS McGill Univ, Dept Med, Div Expt Med, Montreal, PQ, Canada
marcel.behr@mcgill.ca
SO Molecular Microbiology, (JUN 2005) Vol. 56, No. 5, pp. 1302-1313.
CODEN: MOMIEE. ISSN: 0950-382X.
DT Article
LA English
ED Entered STN: 21 Jul 2005
Last Updated on STN: 21 Jul 2005
AB Mycobacterium bovis Bacille Calmette-Guerin (***BCG***) strains are genetically and phenotypically heterogeneous. Expression of the antigenic proteins MPB70 and MPB83 is known to vary considerably across ***BCG*** strains; however, the reason for this phenotypic difference has remained unknown. By immunoblot, we separated ***BCG*** into high- and low-producing strains. By quantitative reverse transcription polymerase chain reaction (RT-PCR), we determined that transcription of the antigen-encoding genes, mpb70 and mpb83, follows the same strain pattern

with mRNA levels reduced over 50-fold in low-producing strains. Transcriptome comparison of the same ***BCG*** strains by DNA microarray revealed two gene regions consistently downregulated in low-producing strains compared with high-producing strains, one including mpb70 (Rv2875) and mpb83 (Rv2873) and a second that includes the predicted sigma factor, sigK. DNA sequence analysis revealed a point mutation in the start codon of sigK in all low-producing ***BCG*** strains. Complementation of a low-producing strain, ***BCG*** Pasteur, with wild-type sigK fully restored MPB70 and MPB83 production. Microarray-based analysis and confirmatory RT-PCR of the complemented strains revealed an upregulation in gene transcription limited to the sigK and the mpb83/mpb70 gene regions. These data demonstrate that a mutation of sigK is responsible for decreased expression of MPB70 and MPB83 in low-producing ***BCG*** strains and provide clues into the role of Mycobacterium tuberculosis SigK.

TI Reduced expression of antigenic proteins MPB70 and MPB83 in Mycobacterium bovis ***BCG*** strains due to a start codon mutation in sigK.

AU Charlet, Danielle; Mostowy, Serge; ***Alexander, David*** ; Sit, Louis; Wiker, Harald G.; Behr, Marcel A. [Reprint Author]

AB Mycobacterium bovis Bacille Calmette-Guerin (***BCG***) strains are genetically and phenotypically heterogeneous. Expression of the antigenic proteins MPB70 and MPB83 is known to vary considerably across ***BCG*** strains; however, the reason for this phenotypic difference has remained unknown. By immunoblot, we separated ***BCG*** into high- and low-producing strains. By quantitative reverse transcription polymerase chain reaction (RT-PCR), we determined that transcription of the antigen-encoding. . . mpb83, follows the same strain pattern with mRNA levels reduced over 50-fold in low-producing strains. Transcriptome comparison of the same ***BCG*** strains by DNA microarray revealed two gene regions consistently downregulated in low-producing strains compared with high-producing strains, one including mpb70. . . predicted sigma factor, sigK. DNA sequence analysis revealed a point mutation in the start codon of sigK in all low-producing ***BCG*** strains. Complementation of a low-producing strain, ***BCG*** Pasteur, with wild-type sigK fully restored MPB70 and MPB83 production. Microarray-based analysis and confirmatory RT-PCR of the complemented strains revealed. . . regions. These data demonstrate that a mutation of sigK is responsible for decreased expression of MPB70 and MPB83 in low-producing ***BCG*** strains and provide clues into the role of Mycobacterium tuberculosis SigK.

L6 ANSWER 4 OF 6 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN
DUPLICATE 3

AN 2004:338289 BIOSIS <<LOGINID::20080329>>

DN PREV200400338470

TI Impact of methoxymycolic acid production by mycobacterium bovis ***BCG*** Vaccines.

AU Belley, Adam; ***Alexander, David*** ; Di Pietrantonio, Tania; Girard, Manon; Jones, Joses; Schurr, Erwin; Liu, Jun; Sherman, David R.; Behr, Marcel A. [Reprint Author]

CS Div Infect Dis and Med Microbiol, Montreal Gen Hosp, 1650 Cedar Ave, Montreal, PQ, H3G 1A4, Canada
marcel.behr@mcgill.ca

SO Infection and Immunity, (May 2004) Vol. 72, No. 5, pp. 2803-2809. print.
ISSN: 0019-9567 (ISSN print).

DT Article

LA English

ED Entered STN: 11 Aug 2004
Last Updated on STN: 11 Aug 2004

AB ***BCG*** vaccines are a family of closely related daughter strains of an attenuated isolate of Mycobacterium bovis derived by in vitro passage from 1908 to 1921. During subsequent laboratory propagation of the vaccine strain until its lyophilization in 1961, ***BCG*** Pasteur underwent at least seven further genomic mutations. The impact of these mutations on the properties of the vaccine is currently unknown. One mutation, a glycine-to-aspartic acid substitution in the mmaA3 gene, occurred between 1927 and 1931 and impairs methoxymycolic acid synthesis in ***BCG*** strains obtained from the Pasteur Institute after this period. Mycolic acids of the cell wall are classified into three functional groups (alpha-, methoxy-, and ketomycolic acids), and together these lipids form a highly specialized permeability barrier around the bacterium. To explore the impact of methoxymycolic acid production by ***BCG*** strains, we complemented the functional gene of mmaA3 into ***BCG*** Denmark and tested a number of in vitro and in vivo phenotypes. Surprisingly, restoration of methoxymycolic acids alone had no effect on cell wall permeability, resistance to antibiotics, or growth in cultured macrophages and C57BL/6 mice. Our results demonstrate that the loss of methoxymycolic acid production did not apparently affect the virulence of ***BCG*** strains.

TI Impact of methoxymycolic acid production by mycobacterium bovis ***BCG*** Vaccines.

AU Belley, Adam; ***Alexander, David*** ; Di Pietrantonio, Tania; Girard, Manon; Jones, Joses; Schurr, Erwin; Liu, Jun; Sherman, David R.; Behr, Marcel A. [Reprint Author]

AB ***BCG*** vaccines are a family of closely related daughter strains of an attenuated isolate of Mycobacterium bovis derived by in vitro passage from 1908 to 1921. During subsequent laboratory propagation of the vaccine strain until its lyophilization in 1961, ***BCG*** Pasteur underwent at least seven further genomic mutations. The impact of these mutations on the properties of the vaccine is. . . mutation, a glycine-to-aspartic acid substitution in the mmaA3 gene, occurred between 1927 and 1931 and impairs methoxymycolic acid synthesis in ***BCG*** strains obtained from the Pasteur Institute after this period. Mycolic acids of the cell wall are classified into three functional. . . these lipids form a highly specialized permeability barrier around the bacterium. To explore the impact of methoxymycolic acid production by ***BCG*** strains, we complemented the functional gene of mmaA3 into ***BCG*** Denmark and tested a number of in vitro and in vivo phenotypes. Surprisingly, restoration of methoxymycolic acids alone had no. . . and C57BL/6 mice. Our results demonstrate that the loss of methoxymycolic acid production did not apparently affect the virulence of ***BCG*** strains.

IT Major Concepts
Immune System (Chemical Coordination and Homeostasis); Infection

IT Chemicals & Biochemicals
methoxymycolic acid: ***BCG*** vaccine production, vaccine response impact

ORGN . . .
Vertebrates

ORGN Classifier
Mycobacteriaceae 08881

Super Taxa
Mycobacteria; Actinomycetes and Related Organisms; Eubacteria; Bacteria; Microorganisms

Organism Name
Mycobacterium bovis (species) [***BCG*** (common)]: pathogen, immune response, vaccine
Taxa Notes
Bacteria, Eubacteria, Microorganisms

L6 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2008 ACS on STN
AN 2003:855955 CAPLUS <<LOGINID::20080329>>
DN 139:363579
TI Tuberculosis vaccines including recombinant Mycobacterium bovis-***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase
IN Liu, Jun; Chen, Jeffrey; ***Alexander, David***
PA Can.
SO PCT Int. Appl., 78 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003089462	A2	20031030	WO 2003-CA566	20030416
	WO 2003089462	A3	20040521		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	CA 2481108	A1	20031030	CA 2003-2481108	20030416
	AU 2003218838	A1	20031103	AU 2003-218838	20030416
	GB 2403477	A	20050105	GB 2004-25165	20030416
	GB 2403477	B	20060823		
	CN 1703513	A	20051130	CN 2003-802276	20030416
	JP 2006508633	T	20060316	JP 2003-586182	20030416
	ZA 2004008344	A	20050907	ZA 2004-8344	20041014
	US 2007264286	A1	20071115	US 2006-511718	20060728
PRAI	US 2002-372450P	P	20020416		
	WO 2003-CA566	W	20030416		

AB The invention relates to a live recombinant Mycobacterium bovis-***BCG*** strain comprising a nucleic acid capable of expression, the nucleic acid encoding at least one protein or polypeptide that exhibits alanine dehydrogenase activity, glutamine synthetase activity, or serine dehydratase activity. The recombinant alanine dehydrogenase, serine dehydratase and glutamine synthetase are derived from Mycobacterium tuberculosis.
TI Tuberculosis vaccines including recombinant Mycobacterium bovis-***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase
IN Liu, Jun; Chen, Jeffrey; ***Alexander, David***
AB The invention relates to a live recombinant Mycobacterium bovis-***BCG*** strain comprising a nucleic acid capable of expression, the nucleic acid encoding at least one protein or polypeptide that exhibits.

. .
ST recombinant Mycobacterium bovis ***BCG*** strain tuberculosis vaccine; alanine dehydrogenase serine dehydratase glutamine synthetase ***BCG*** tuberculosis vaccine

IT Immunostimulants
(adjuvants; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT Drug delivery systems
(carriers; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT Proteins
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(recombinant; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT Antitumor agents
Bladder, neoplasm
Bos taurus
Culture media
DNA sequences
Human
Mammalia
Molecular cloning
Mycobacterium
Mycobacterium ***BCG***
Mycobacterium tuberculosis
Pathogen
Protein sequences
Test kits
Tuberculosis
Vaccines
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT Gene, microbial
Nucleic acids
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT Antigens
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT 619345-18-5P 619345-20-9P 619345-21-0P 619345-22-1P 619345-23-2P 619345-24-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(amino acid sequence; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT 619345-19-6
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(amino acid sequence; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT 619345-25-4P 619345-27-6P 619345-28-7P 619345-29-8P 619345-30-1P 619345-31-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(nucleotide sequence; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT 619345-26-5, DNA (Mycobacterium bovis gene ald)
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(nucleotide sequence; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT 7440-44-0, Carbon, biological studies 7727-37-9, Nitrogen, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(source; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT 9014-27-1P, Serine dehydratase 9023-70-5P, Glutamine synthetase 9029-06-5P, Alanine dehydrogenase 175380-16-2P, GenBank Z70692 193398-67-3P, GenBank Z97193 196526-70-2P, GenBank U87280 199902-12-0P, GenBank AL008883 202943-88-2P, GenBank AL021428 335511-06-3P, GenBank AE006919 335512-36-2P, GenBank AE007049 335512-60-2P, GenBank AE007073 335513-04-7P, GenBank AE007117
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

IT 50-99-7, Dextrose, biological studies 56-41-7, L-Alanine, biological studies 56-45-1, L-Serine, biological studies 56-81-5, Glycerol, biological studies 71-00-1, L-Histidine, biological studies 77-92-9, Citric acid, biological studies 338-69-2, D-Alanine 7439-89-6, Iron, biological studies 7439-95-4, Magnesium, biological studies 14808-79-8, Sulfate, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or glutamine synthetase)

L6 ANSWER 6 OF 6 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN
DUPLICATE 4
AN 2003:127824 BIOSIS <<LOGINID::20080329>>

DN PREV200300127824
TI Mycobacterium bovis ***BCG*** vaccines exhibit defects in alanine and serine catabolism.
AU Chen, Jeffrey M.; ***Alexander, David C.*** ; Behr, Marcel A.; Liu, Jun [Reprint Author]
CS Department of Medical Genetics and Microbiology, University of Toronto, 1 King's College Circle, 4382 Medical Sciences Building, Toronto, ON, M5S 1A8, Canada
jun.liu@utoronto.ca
SO Infection and Immunity, (February 2003) Vol. 71, No. 2, pp. 708-716. print.
ISSN: 0019-9567 (ISSN print).
DT Article
LA English
ED Entered STN: 5 Mar 2003
Last Updated on STN: 5 Mar 2003
AB Mycobacterium bovis ***BCG*** is the only accepted vaccine for the prevention of tuberculosis (TB) in humans. ***BCG*** is a live vaccine, and induction of immunity to TB requires productive infection of the host by ***BCG*** . However, ***BCG*** is not a satisfactory vaccine, because it fails to protect against pulmonary TB in adults. In this study, we found that ***BCG*** strains cannot utilize many naturally occurring amino acids as the sole nitrogen source for growth. This defect is caused, at least partially, by the lack of functional metabolic enzymes. All ***BCG*** strains are unable to catabolize L-alanine or D-alanine due to a frameshift mutation in the L-alanine dehydrogenase gene (ald). Some ***BCG*** strains, such as ***BCG*** -Pasteur and ***BCG*** -Frappier, cannot catabolize L-serine, apparently due to inadequate expression of L-serine deaminase (sdaA). We also found that undegraded alanine and serine inhibit the growth of ***BCG*** through blockage of glutamine synthetase. These results suggest that ***BCG*** strains are limited in nitrogen metabolic capacity and predict defects that may restrict multiplication and persistence of the live vaccine within the host.
TI Mycobacterium bovis ***BCG*** vaccines exhibit defects in alanine and serine catabolism.
AU Chen, Jeffrey M.; ***Alexander, David C.*** ; Behr, Marcel A.; Liu, Jun [Reprint Author]
AB Mycobacterium bovis ***BCG*** is the only accepted vaccine for the prevention of tuberculosis (TB) in humans. ***BCG*** is a live vaccine, and induction of immunity to TB requires productive infection of the host by ***BCG*** . However, ***BCG*** is not a satisfactory vaccine, because it fails to protect against pulmonary TB in adults. In this study, we found that ***BCG*** strains cannot utilize many naturally occurring amino acids as the sole nitrogen source for growth. This defect is caused, at least partially, by the lack of functional metabolic enzymes. All ***BCG*** strains are unable to catabolize L-alanine or D-alanine due to a frameshift mutation in the L-alanine dehydrogenase gene (ald). Some ***BCG*** strains, such as ***BCG*** -Pasteur and ***BCG*** -Frappier, cannot catabolize L-serine, apparently due to inadequate expression of L-serine deaminase (sdaA). We also found that undegraded alanine and serine inhibit the growth of ***BCG*** through blockage of glutamine synthetase. These results suggest that ***BCG*** strains are limited in nitrogen metabolic capacity and predict defects that may restrict multiplication and persistence of the live vaccine. . .
IT . . .

disease
Tuberculosis, Pulmonary (MeSH)
IT Diseases
tuberculosis: bacterial disease
Tuberculosis (MeSH)
IT Chemicals & Biochemicals
D-alanine; L-alanine; L-alanine dehydrogenase; L-serine; Mycobacterium bovis ***BCG*** vaccines: immunologic-drug, immunostimulant-drug; glutamine synthetase [EC 6.3.1.2]

=> s BCG and (alanine dehydrogenase)
L7 33 BCG AND (ALANINE DEHYDROGENASE)

=> dup rem l7
PROCESSING COMPLETED FOR L7
L8 13 DUP REM L7 (20 DUPLICATES REMOVED)

=> d bib ab kwic 1-
YOU HAVE REQUESTED DATA FROM 13 ANSWERS - CONTINUE? Y/(N):y

L8 ANSWER 1 OF 13 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN
DUPLICATE 1
AN 2006:636896 BIOSIS <<LOGINID::20080329>>
DN PREV200600639889
TI Contribution of L- ***alanine*** ***dehydrogenase*** to in vivo persistence and protective efficacy of the ***BCG*** vaccine.
AU Scandurra, Gabriella M.; Ryan, Anthony A.; Pinto, Rachel; Britton, Warwick J.; Triccas, James A. [Reprint Author]
CS Univ Sydney, Discipline Infect Dis and Immunol, Sydney, NSW 2006, Australia
jamiet@infdis.usyd.edu.au
SO Microbiology and Immunology, (2006) Vol. 50, No. 10, pp. 805-810.
CODEN: MIIMDV. ISSN: 0385-5600.
DT Article
LA English
ED Entered STN: 22 Nov 2006
Last Updated on STN: 22 Nov 2006
AB The tuberculosis (TB) vaccine strain Mycobacterium bovis ***BCG*** is unable to utilise alanine and this deficiency is thought to inhibit the growth of the vaccine in vivo and limit vaccine efficacy. In this report we demonstrate that L-alanine catabolism can be conferred on ***BCG*** by introduction of the gene encoding L- ***alanine*** ***dehydrogenase*** (Ald) of Mycobacterium tuberculosis. Restoration of
Ald activity did not change the in vivo growth of ***BCG*** in macrophages or mice, and protection against aerosol M. tuberculosis infection was not altered by addition of ald to the ***BCG*** vaccine. These results demonstrate that the inability to utilise L-alanine is not a contributing factor to the attenuated phenotype of ***BCG*** and does not influence the protective efficacy of the vaccine against TB.
TI Contribution of L- ***alanine*** ***dehydrogenase*** to in vivo persistence and protective efficacy of the ***BCG*** vaccine.
AB The tuberculosis (TB) vaccine strain Mycobacterium bovis ***BCG*** is unable to utilise alanine and this deficiency is thought to inhibit the growth of the vaccine in vivo and limit vaccine efficacy. In this report we demonstrate that L-alanine catabolism can be conferred on ***BCG***

by introduction of the gene encoding L- ***alanine*** ***dehydrogenase*** (Ald) of Mycobacterium tuberculosis. Restoration of Ald activity did not change the in vivo growth of ***BCG*** in macrophages or mice, and protection against aerosol M. tuberculosis infection was not altered by addition of ald to the ***BCG*** vaccine. These results demonstrate that the inability to utilise L-alanine is not a contributing factor to the attenuated phenotype of ***BCG*** and does not influence the protective efficacy of the vaccine against TB.

IT . . .
blood and lymphatics

IT Diseases
tuberculosis: bacterial disease, infectious disease, etiology, prevention and control
Tuberculosis (MeSH)

IT Chemicals & Biochemicals
alanine; L- ***alanine*** ***dehydrogenase*** ; CBG vaccine: immunologic-drug, efficacy

RN 302-72-7 (alanine)
9029-06-5 (L- ***alanine*** ***dehydrogenase***)

GEN Mycobacterium tuberculosis ald gene [Mycobacterium tuberculosis L- ***alanine*** ***dehydrogenase*** gene] (Mycobacteriaceae)

L8 ANSWER 2 OF 13 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN
DUPLICATE 2

AN 2005:176271 BIOSIS <<LOGINID::20080329>>

DN PREV200500173985

TI Bacterial luciferase is naturally destabilized in Mycobacterium tuberculosis and can be used to monitor changes in gene expression.

AU Roberts, Esteban A.; Clark, Amanda; Friedman, Richard L. [Reprint Author]

CS Dept Microbiol and Immunol, Univ Arizona, 1501 N Campbell Ave, Tucson, AZ, 85724, USA
rfriedma@email.arizona.edu

SO FEMS Microbiology Letters, (February 1 2005) Vol. 243, No. 1, pp. 243-249. print.
CODEN: FMLED7. ISSN: 0378-1097.

DT Article

LA English

ED Entered STN: 4 May 2005
Last Updated on STN: 4 May 2005

AB Reporter systems efficient at monitoring temporal gene expression in slow-growing mycobacteria would significantly aid the characterization of gene expression in specific environments. Bacterial luciferase is a reporter that has not been widely used to study gene expression in mycobacteria. This report describes the determination of the degradation of bacterial luciferase in Mycobacterium tuberculosis H37Ra and its utility as a reporter of temporal gene expression in this slow-growing mycobacterium. The inducible/ repressible ***alanine*** ***dehydrogenase*** promoter of M. tuberculosis H37Rv was used to track the decay kinetics of Vibrio harueyi luciferase in both mid-log phase and stationary phase grown M. tuberculosis H37Ra, which proved to be highly similar during both phases of growth. The luciferase reporter was then used to detect changes in expression from the heat-shock promoter, phsp60, of M. bovis ***BCG*** during M. tuberculosis H37Ra growth in culture. Quantitative real-time PCR analysis of groEL2, the hsp60 homologue in M. tuberculosis, displayed a similar pattern of expression to phsp60-driven luciferase. These results strongly suggest that the luciferase reporter

can be used to monitor temporal changes in gene expression in M. tuberculosis and may serve as a novel system to examine gene expression under specific conditions. Copyright 2004 Federation of European Microbiological Societies. Published by Elsevier B.V. All rights reserved.

AB. . . Mycobacterium tuberculosis H37Ra and its utility as a reporter of temporal gene expression in this slow-growing mycobacterium. The inducible/ repressible ***alanine*** ***dehydrogenase*** promoter of M. tuberculosis H37Rv was used to track the decay kinetics of Vibrio harueyi luciferase in both mid-log phase. . . growth. The luciferase reporter was then used to detect changes in expression from the heat-shock promoter, phsp60, of M. bovis ***BCG*** during M. tuberculosis H37Ra growth in culture. Quantitative real-time PCR analysis of groEL2, the hsp60 homologue in M. tuberculosis, displayed. . .

IT Major Concepts
Molecular Genetics (Biochemistry and Molecular Biophysics)

IT Chemicals & Biochemicals
inducible/repressible ***alanine*** ***dehydrogenase*** promoter; luciferase

L8 ANSWER 3 OF 13 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN

AN 2007:338335 BIOSIS <<LOGINID::20080329>>

DN PREV200700326336

TI Mycobacterium bovis ***BCG*** vaccines exhibit dysregulation of glutarnine synthetase in response to nitrogen availability.

AU Chen, J. M. [Reprint Author]; Alexander, D. C.; Behr, M. A.; Liu, J.

CS Univ Toronto, Toronto, ON, Canada

SO Abstracts of the General Meeting of the American Society for Microbiology, (2004) Vol. 104, pp. 639-640.
Meeting Info.: 104th General Meeting of the American-Society-for-Microbiology. New Orleans, LA, USA. May 23 -27, 2004. Amer Soc Microbiol.
ISSN: 1060-2011.

DT Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)

LA English

ED Entered STN: 30 May 2007
Last Updated on STN: 30 May 2007

TI Mycobacterium bovis ***BCG*** vaccines exhibit dysregulation of glutarnine synthetase in response to nitrogen availability.

ORGN . . .
Mycobacteria; Actinomycetes and Related Organisms; Eubacteria; Bacteria; Microorganisms
Organism Name
Mycobacterium smegmatis (species)
Mycobacterium marinum (species)
Mycobacterium tuberculosis (species)
Mycobacterium bovis (species): pathogen, strain- ***BCG***
Taxa Notes
Bacteria, Eubacteria, Microorganisms

GEN Mycobacterium bovis ald gene [Mycobacterium bovis ***alanine*** ***dehydrogenase*** gene gene] (Mycobacteriaceae); Mycobacterium bovis sdaA gene [Mycobacterium bovis serine deaminase gene gene] (Mycobacteriaceae); Mycobacterium bovis glnA1 gene [Mycobacterium bovis. . .

L8 ANSWER 4 OF 13 CAPLUS COPYRIGHT 2008 ACS on STN

AN 2003:855955 CAPLUS <<LOGINID::20080329>>

DN 139:363579
TI Tuberculosis vaccines including recombinant Mycobacterium bovis-***BCG*** strains expressing ***alanine*** ***dehydrogenase*** , serine dehydratase and/or glutamine synthetase
IN Liu, Jun; Chen, Jeffrey; Alexander, David
PA Can.
SO PCT Int. Appl., 78 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003089462	A2	20031030	WO 2003-CA566	20030416
	WO 2003089462	A3	20040521		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	CA 2481108	A1	20031030	CA 2003-2481108	20030416
	AU 2003218838	A1	20031103	AU 2003-218838	20030416
	GB 2403477	A	20050105	GB 2004-25165	20030416
	GB 2403477	B	20060823		
	CN 1703513	A	20051130	CN 2003-802276	20030416
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	WO 2003-CA566	W	20030416		

AB The invention relates to a live recombinant Mycobacterium bovis-***BCG*** strain comprising a nucleic acid capable of expression, the nucleic acid encoding at least one protein or polypeptide that exhibits ***alanine*** ***dehydrogenase*** activity, glutamine synthetase activity, or serine dehydratase activity. The recombinant ***alanine*** ***dehydrogenase*** , serine dehydratase and glutamine synthetase are derived from Mycobacterium tuberculosis.
TI Tuberculosis vaccines including recombinant Mycobacterium bovis-***BCG*** strains expressing ***alanine*** ***dehydrogenase*** , serine dehydratase and/or glutamine synthetase
AB The invention relates to a live recombinant Mycobacterium bovis-***BCG*** strain comprising a nucleic acid capable of expression, the nucleic acid encoding at least one protein or polypeptide that exhibits ***alanine*** ***dehydrogenase*** activity, glutamine synthetase activity, or serine dehydratase activity. The recombinant ***alanine*** ***dehydrogenase*** , serine dehydratase and glutamine synthetase are derived from Mycobacterium tuberculosis.
ST recombinant Mycobacterium bovis ***BCG*** strain tuberculosis vaccine; ***alanine*** ***dehydrogenase*** serine dehydratase glutamine synthetase ***BCG*** tuberculosis vaccine
IT Immunostimulants
(adjuvants; tuberculosis vaccines including recombinant Mycobacterium

bovis- ***BCG*** strains expressing ***alanine***
dehydrogenase , serine dehydratase and/or glutamine synthetase)

IT Drug delivery systems
(carriers; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing ***alanine***
dehydrogenase , serine dehydratase and/or glutamine synthetase)

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RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(recombinant; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing ***alanine***
dehydrogenase , serine dehydratase and/or glutamine synthetase)

IT Antitumor agents
Bladder, neoplasm
Bos taurus
Culture media
DNA sequences
Human
Mammalia
Molecular cloning
Mycobacterium
Mycobacterium ***BCG***
Mycobacterium tuberculosis
Pathogen
Protein sequences
Test kits
Tuberculosis
Vaccines
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing ***alanine*** ***dehydrogenase***
, serine dehydratase and/or glutamine synthetase)

IT Gene, microbial
Nucleic acids
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing ***alanine*** ***dehydrogenase***
, serine dehydratase and/or glutamine synthetase)

IT Antigens
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing ***alanine*** ***dehydrogenase***
, serine dehydratase and/or glutamine synthetase)

IT 619345-18-5P 619345-20-9P 619345-21-0P 619345-22-1P 619345-23-2P 619345-24-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(amino acid sequence; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing ***alanine***
dehydrogenase , serine dehydratase and/or glutamine synthetase)

IT 619345-19-6
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)

(amino acid sequence; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing ***alanine*** ***dehydrogenase*** , serine dehydratase and/or glutamine synthetase)

IT 619345-25-4P 619345-27-6P 619345-28-7P 619345-29-8P 619345-30-1P 619345-31-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(nucleotide sequence; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing ***alanine*** ***dehydrogenase*** , serine dehydratase and/or glutamine synthetase)

IT 619345-26-5, DNA (Mycobacterium bovis gene ald)
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(nucleotide sequence; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing ***alanine*** ***dehydrogenase*** , serine dehydratase and/or glutamine synthetase)

IT 7440-44-0, Carbon, biological studies 7727-37-9, Nitrogen, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
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IT 9014-27-1P, Serine dehydratase 9023-70-5P, Glutamine synthetase 9029-06-5P, ***Alanine*** ***dehydrogenase*** 175380-16-2P, GenBank Z70692 193398-67-3P, GenBank Z97193 196526-70-2P, GenBank U87280 199902-12-0P, GenBank AL008883 202943-88-2P, GenBank AL021428 335511-06-3P, GenBank AE006919 335512-36-2P, GenBank AE007049 335512-60-2P, GenBank AE007073 335513-04-7P, GenBank AE007117
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing ***alanine*** ***dehydrogenase*** , serine dehydratase and/or glutamine synthetase)

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RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing ***alanine*** ***dehydrogenase*** , serine dehydratase and/or glutamine synthetase)

L8 ANSWER 5 OF 13 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN
DUPLICATE 3
AN 2003:127824 BIOSIS <<LOGINID::20080329>>
DN PREV200300127824
TI Mycobacterium bovis ***BCG*** vaccines exhibit defects in alanine and serine catabolism.
AU Chen, Jeffrey M.; Alexander, David C.; Behr, Marcel A.; Liu, Jun [Reprint Author]
CS Department of Medical Genetics and Microbiology, University of Toronto, 1

King's College Circle, 4382 Medical Sciences Building, Toronto, ON, M5S 1A8, Canada
jun.liu@utoronto.ca
SO Infection and Immunity, (February 2003) Vol. 71, No. 2, pp. 708-716. print.
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ED Entered STN: 5 Mar 2003
Last Updated on STN: 5 Mar 2003
AB Mycobacterium bovis ***BCG*** is the only accepted vaccine for the prevention of tuberculosis (TB) in humans. ***BCG*** is a live vaccine, and induction of immunity to TB requires productive infection of the host by ***BCG*** . However, ***BCG*** is not a satisfactory vaccine, because it fails to protect against pulmonary TB in adults. In this study, we found that ***BCG*** strains cannot utilize many naturally occurring amino acids as the sole nitrogen source for growth. This defect is caused, at least partially, by the lack of functional metabolic enzymes. All ***BCG*** strains are unable to catabolize L-alanine or D-alanine due to a frameshift mutation in the L- ***alanine*** ***dehydrogenase*** gene (ald). Some ***BCG*** strains, such as ***BCG*** -Pasteur and ***BCG*** -Frappier, cannot catabolize L-serine, apparently due to inadequate expression of L-serine deaminase (sdaA). We also found that undegraded alanine and serine inhibit the growth of ***BCG*** through blockage of glutamine synthetase. These results suggest that ***BCG*** strains are limited in nitrogen metabolic capacity and predict defects that may restrict multiplication and persistence of the live vaccine within the host.
TI Mycobacterium bovis ***BCG*** vaccines exhibit defects in alanine and serine catabolism.
AB Mycobacterium bovis ***BCG*** is the only accepted vaccine for the prevention of tuberculosis (TB) in humans. ***BCG*** is a live vaccine, and induction of immunity to TB requires productive infection of the host by ***BCG*** . However, ***BCG*** is not a satisfactory vaccine, because it fails to protect against pulmonary TB in adults. In this study, we found that ***BCG*** strains cannot utilize many naturally occurring amino acids as the sole nitrogen source for growth. This defect is caused, at least partially, by the lack of functional metabolic enzymes. All ***BCG*** strains are unable to catabolize L-alanine or D-alanine due to a frameshift mutation in the L- ***alanine*** ***dehydrogenase*** gene (ald). Some ***BCG*** strains, such as ***BCG*** -Pasteur and ***BCG*** -Frappier, cannot catabolize L-serine, apparently due to inadequate expression of L-serine deaminase (sdaA). We also found that undegraded alanine and serine inhibit the growth of ***BCG*** through blockage of glutamine synthetase. These results suggest that ***BCG*** strains are limited in nitrogen metabolic capacity and predict defects that may restrict multiplication and persistence of the live vaccine. . .
IT . . .
tuberculosis: bacterial disease, respiratory system disease
Tuberculosis, Pulmonary (MeSH)
IT Diseases
tuberculosis: bacterial disease
Tuberculosis (MeSH)
IT Chemicals & Biochemicals
D-alanine; L-alanine; L- ***alanine*** ***dehydrogenase*** ;
L-serine; Mycobacterium bovis ***BCG*** vaccines: immunologic-drug,

immunostimulant-drug; glutamine synthetase [EC 6.3.1.2]
RN 338-69-2 (D-alanine)
56-41-7 (L-alanine)
9029-06-5 (L- ***alanine*** ***dehydrogenase***)
56-45-1 (L-serine)
9023-70-5 (glutamine synthetase)
9023-70-5 (EC 6.3.1.2)

L8 ANSWER 6 OF 13 CAPLUS COPYRIGHT 2008 ACS on STN
AN 2001:50676 CAPLUS <<LOGINID::20080329>>
DN 134:114829
TI Tuberculosis vaccine and diagnostics based on the Mycobacterium tuberculosis esat-6 gene family
IN Andersen, Peter; Skjot, Rikke
PA Statens Serum Institut, Den.
SO PCT Int. Appl., 80 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 10

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001004151	A2	20010118	WO 2000-DK398	20000713
	WO 2001004151	A3	20010712		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	CA 2378763	A1	20010118	CA 2000-2378763	20000713
	AU 2000059664	A	20010130	AU 2000-59664	20000713
	AU 779495	B2	20050127		
	EP 1200466	A2	20020502	EP 2000-945660	20000713
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL				
	JP 2003510018	T	20030318	JP 2001-509760	20000713
	US 2004013685	A1	20040122	US 2001-872505	20010601
	AU 2002301509	A1	20030306	AU 2002-301509	20021010
	AU 2005201767	A1	20050519	AU 2005-201767	20050427
	AU 2006252186	A2	20070118	AU 2006-252186	20061221
	AU 2006252186	A1	20070118		
PRAI	DK 1999-1020	A	19990713		
	US 1999-144011P	P	19990715		
	DK 1997-1277	A	19971110		
	US 1998-70488P	P	19980105		
	AU 1998-94338	A3	19981008		
	WO 1998-DK438	W	19981008		
	US 1998-246191	B2	19981230		
	AU 2000-59664	A3	20000713		
	US 2000-615947	A2	20000713		
	WO 2000-DK398	W	20000713		
	US 2001-804980	A2	20010313		
	AU 2002-301509	A3	20021010		

AB The authors report the cloning and T-cell-stimulatory activity of members of the esat-6 gene family of Mycobacterium tuberculosis.

IT Mycobacterium ***BCG***
Mycobacterium africanum
Mycobacterium bovis
(fusion protein of ESAT-6 from M. tuberculosis and polypeptide fragment from)

IT 9002-13-5, Urease 9023-70-5, Glutamine synthetase 9029-06-5, L-***Alanine*** ***dehydrogenase*** 9054-89-1, Superoxide dismutase
RL: ARG (Analytical reagent use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(fusion protein with ESAT-6 from Mycobacterium tuberculosis for vaccination and diagnosis)

L8 ANSWER 7 OF 13 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN
DUPLICATE 4

AN 2000:26849 BIOSIS <<LOGINID::20080329>>

DN PREV200000026849

TI Properties of the 40 kDa antigen of Mycobacterium tuberculosis, a functional L- ***alanine*** ***dehydrogenase*** .

AU Hutter, Bernd; Singh, Mahavir [Reprint author]

CS GBF (Gesellschaft fuer Biotechnologische Forschung m.b.H)-National Research Center for Biotechnology and Department of Biochemistry, Technical University of Braunschweig, 38124, Braunschweig, Germany

SO Biochemical Journal, (Nov. 1, 1999) Vol. 343, No. 3, pp. 669-672. print.
ISSN: 0264-6021.

DT Article

LA English

ED Entered STN: 13 Jan 2000
Last Updated on STN: 31 Dec 2001

AB The 40 kDa antigen of Mycobacterium tuberculosis is the first antigen reported to be present in the pathogenic M. tuberculosis, but not in the vaccine strain Mycobacterium bovis ***BCG*** . It is a functional L-***alanine*** ***dehydrogenase*** (EC 1.4.1.1) and hence one of the few antigens possessing an enzymic activity. This makes the 40 kDa antigen attractive for potential diagnostic and therapeutic interventions. Recently, we developed a strategy to purify quantities of the recombinant protein in active form, and here we describe the biochemical properties of this enzyme. In the oxidative-deamination reaction, the enzyme showed Km values of 13.8 mM and 0.31 mM for L-alanine and NAD+, respectively, in a random-ordered mechanism. Km,app values in the reductive-amination reaction are 35.4 mM, 1.45 mM and 98.2 muM for ammonium, pyruvate and NADH, respectively. The enzyme is highly specific for all of its substrates in both directions. The pH profile indicates that oxidative deamination virtually may not occur at physiological pH. Hence L-alanine most likely is the product of the reaction catalysed in vivo. The enzyme is heat-stable, losing practically no activity at 60 degreeC for several hours.

TI Properties of the 40 kDa antigen of Mycobacterium tuberculosis, a functional L- ***alanine*** ***dehydrogenase*** .

AB. . . the first antigen reported to be present in the pathogenic M. tuberculosis, but not in the vaccine strain Mycobacterium bovis ***BCG*** . It is a functional L- ***alanine*** ***dehydrogenase***
(EC 1.4.1.1) and hence one of the few antigens possessing an enzymic activity. This makes the 40 kDa antigen attractive. . .

IT Major Concepts

Enzymology (Biochemistry and Molecular Biophysics)
IT Chemicals & Biochemicals
Mycobacterium tuberculosis L- ***alanine*** ***dehydrogenase*** [EC 1.4.1.1]: 40 kDa antigen

L8 ANSWER 8 OF 13 CAPLUS COPYRIGHT 2008 ACS on STN
AN 1998:684968 CAPLUS <<LOGINID::20080329>>
DN 129:300060
TI Novel antigens of Mycobacterium tuberculosis culture filtrates and the genes encoding and their diagnostic and prophylactic use
IN Andersen, Peter; Nielsen, Rikke; Rosenkrands, Ida; Weldingh, Karin; Rasmussen, Peter Birk; Oettinger, Thomas; Florio, Walter
PA Statens Serum Institut, Den.
SO PCT Int. Appl., 264 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 10

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9844119	A1	19981008	WO 1998-DK132	19980401
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	CA 2285625	A1	19981008	CA 1998-2285625	19980401
	AU 9868204	A	19981022	AU 1998-68204	19980401
	AU 740545	B2	20011108		
	EP 972045	A1	20000119	EP 1998-913536	19980401
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	JP 2001515359	T	20010918	JP 1998-541074	19980401
	EP 1449922	A2	20040825	EP 2004-76605	19980401
	EP 1449922	A3	20041117		
	EP 1449922	B1	20070815		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY				
	AT 370236	T	20070915	AT 2004-76605	19980401
	ES 2291810	T3	20080301	ES 2004-76605	19980401
	CA 2319380	A1	19990520	CA 1998-2319380	19981008
	WO 9924577	A1	19990520	WO 1998-DK438	19981008
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	EP 1029053	A1	20000823	EP 1998-947412	19981008
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	NZ 504951	A	20010629	NZ 1998-504951	19981008

	AU 750173	B2	20020711	AU 1998-94338	19981008
	EP 1484405	A1	20041208	EP 2004-77071	19981008
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY				
	AU 2002301509	A1	20030306	AU 2002-301509	20021010
	AU 2006252186	A2	20070118	AU 2006-252186	20061221
	AU 2006252186	A1	20070118		
PRAI	DK 1997-376	A	19970402		
	US 1997-44624P	P	19970418		
	DK 1997-1277	A	19971110		
	US 1998-70488P	P	19980105		
	EP 1998-913536	A3	19980401		
	WO 1998-DK132	W	19980401		
	AU 1998-94338	A3	19981008		
	EP 1998-947412	A3	19981008		
	WO 1998-DK438	W	19981008		
	AU 2002-301509	A3	20021010		

AB Culture filtrate antigens of Mycobacterium tuberculosis are characterized and cDNAs encoding them are cloned. Some of the proteins are antigenic and suitable for use in vaccines and in diagnosis of infections, e.g. skin tests. A fusion protein of two of these antigens is a superior immunogen compared to the unfused proteins. Individual antigens from culture filtrates were identified by T cell mapping using T cells from memory immune mice. Genes for individual antigens were then cloned by screening a .lambda.gt11 expression vector with monoclonal antibodies. Manuf. of individual antigens with hexahistidine affinity labels is described.

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Escherichia
Mycobacterium
Mycobacterium ***BCG***
Pseudomonas
Salmonella
(expression host for Mycobacterium tuberculosis antigen genes; novel antigens of Mycobacterium tuberculosis culture filtrates and genes encoding and their diagnostic and prophylactic use)

IT 151185-45-4, Protein (Mycobacterium ***BCG*** strain Tokyo ribosome)
208778-78-3 208782-67-6 208783-23-7 208783-90-8 208786-90-7
208788-06-1 208788-47-0 208790-41-4 208790-42-5 208853-48-9
208856-86-4 208857-49-2 208859-77-2 208863-45-0 208864-30-6
208865-40-1 208868-63-7 208871-19-6 208872-79-1 208874-21-9
208875-49-4 209053-74-7 210170-05-1 214348-60-4 214348-78-4
214348-84-2 214348-92-2 214349-12-9 214349-22-1 214349-24-3
214349-26-5 214349-38-9
RL: BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(amino acid sequence; novel antigens of Mycobacterium tuberculosis culture filtrates and genes encoding and their diagnostic and prophylactic use)

IT 9002-13-5D, Urease, fusion products 9023-70-5D, Glutamine synthetase, fusion products 9029-06-5D, ***Alanine*** ***dehydrogenase*** , fusion products 9054-89-1D, Superoxide dismutase, fusion products
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(as antigen of Mycobacterium tuberculosis; novel antigens of Mycobacterium tuberculosis culture filtrates and genes encoding and their diagnostic and prophylactic use)

L8 ANSWER 9 OF 13 CAPLUS COPYRIGHT 2008 ACS on STN
AN 1998:527438 CAPLUS <<LOGINID::20080329>>
DN 129:159059
TI L- ***alanine*** ***dehydrogenase*** of Mycobacterium marinum as an antigen for use in tuberculosis vaccines
IN Flohe, Leopold; Singh, Mahavir; Hutter, Bernd; Kolk, Arend
PA Germany
SO PCT Int. Appl., 57 pp.
CODEN: PIXXD2
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9832862	A2	19980730	WO 1998-EP484	19980129
	WO 9832862	A3	19981112		
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	AU 9860979	A	19980818	AU 1998-60979	19980129
PRAI	EP 1997-101339	A	19970129		
	WO 1998-EP484	W	19980129		

AB An antigen of Mycobacterium marinum that may be useful as an antigen in tuberculosis vaccines is described. The antigen is an L- ***alanine*** ***dehydrogenase*** (I). Monoclonal antibodies to the protein react with Mycobacterium tuberculosis but not with Mycobacterium ***BCG*** . I is relatively uncommon in bacterial systems and was found at high levels in only a few species of Mycobacterium including M. marinum and M. tuberculosis. Mycobacterium ***BCG*** had a very low I activity. All species of the M. tuberculosis complex carried copies of the dehydrogenase gene regardless of their endogenous I levels. ***Alanine*** ***dehydrogenase*** activity in slow-growing Mycobacteria appeared to correlate with virulence.

TI L- ***alanine*** ***dehydrogenase*** of Mycobacterium marinum as an antigen for use in tuberculosis vaccines

AB . . . antigen of Mycobacterium marinum that may be useful as an antigen in tuberculosis vaccines is described. The antigen is an L- ***alanine*** ***dehydrogenase*** (I). Monoclonal antibodies to the protein react with Mycobacterium tuberculosis but not with Mycobacterium ***BCG*** . I is relatively uncommon in bacterial systems and was found at high levels in only a few species of Mycobacterium including M. marinum and M. tuberculosis. Mycobacterium ***BCG*** had a very low I activity. All species of the M. tuberculosis complex carried copies of the dehydrogenase gene regardless of their endogenous I levels. ***Alanine*** ***dehydrogenase*** activity in slow-growing Mycobacteria appeared to correlate with virulence.

ST ***alanine*** ***dehydrogenase*** antigen Mycobacterium vaccine tuberculosis

IT Mycobacterium
(***alanine*** ***dehydrogenase*** in; L- ***alanine***

dehydrogenase of Mycobacterium marinum as antigen for use in tuberculosis vaccines)

IT Mycobacterium ***BCG***
Mycobacterium africanum
Mycobacterium bovis
Mycobacterium microti
(***alanine*** ***dehydrogenase*** of; L- ***alanine*** ***dehydrogenase*** of Mycobacterium marinum as antigen for use in tuberculosis vaccines)

IT Infection
(bacterial, ***alanine*** ***dehydrogenase*** as antigen in diagnosis of swimmer's disease; L- ***alanine*** ***dehydrogenase*** of Mycobacterium marinum as antigen for use in tuberculosis vaccines)

IT DNA sequences
(for ***alanine*** ***dehydrogenase*** of Mycobacterium; L- ***alanine*** ***dehydrogenase*** of Mycobacterium marinum as antigen for use in tuberculosis vaccines)

IT Gene, microbial
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); USES (Uses)
(for ***alanine*** ***dehydrogenase*** of Mycobactrium, cloning of; L- ***alanine*** ***dehydrogenase*** of Mycobacterium marinum as antigen for use in tuberculosis vaccines)

IT Diagnosis
(mol., of tuberculosis, with ***alanine*** ***dehydrogenase*** antigen; L- ***alanine*** ***dehydrogenase*** of Mycobacterium marinum as antigen for use in tuberculosis vaccines)

IT Antibodies
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(monoclonal, for antigen of Mycobacterium tuberculosis absent from Mycobacterium ***BCG*** ; L- ***alanine*** ***dehydrogenase*** of Mycobacterium marinum as antigen for use in tuberculosis vaccines)

IT Virulence (microbial)
(of Mycobacterium, ***alanine*** ***dehydrogenase*** as a marker for; L- ***alanine*** ***dehydrogenase*** of Mycobacterium marinum as antigen for use in tuberculosis vaccines)

IT Protein sequences
(of ***alanine*** ***dehydrogenase*** of Mycobacterium; L- ***alanine*** ***dehydrogenase*** of Mycobacterium marinum as antigen for use in tuberculosis vaccines)

IT Plasmid vectors
(pMSK12, gene for antigen of Mycobacterium marinus on; L- ***alanine*** ***dehydrogenase*** of Mycobacterium marinum as antigen for use in tuberculosis vaccines)

IT Vaccines
(tuberculosis; L- ***alanine*** ***dehydrogenase*** of Mycobacterium marinum as antigen for use in tuberculosis vaccines)

IT Tuberculosis
(vaccines against, antigen for; L- ***alanine*** ***dehydrogenase*** of Mycobacterium marinum as antigen for use in tuberculosis vaccines)

IT Mycobacterium marinum
(L- ***alanine*** ***dehydrogenase*** of Mycobacterium marinum as antigen for use in tuberculosis vaccines)

IT 211176-56-6 211176-58-8

RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(amino acid sequence; L- ***alanine*** ***dehydrogenase*** of Mycobacterium marinum as antigen for use in tuberculosis vaccines)

IT 9029-06-5P, L- ***Alanine*** ***dehydrogenase***
RL: BOC (Biological occurrence); BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); USES (Uses)
(as antigen; L- ***alanine*** ***dehydrogenase*** of Mycobacterium marinum as antigen for use in tuberculosis vaccines)

IT 211176-55-5 211176-57-7 211176-59-9 211176-60-2 211176-61-3 211176-62-4 211176-64-6 211176-65-7 211176-66-8
RL: BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(nucleotide sequence; L- ***alanine*** ***dehydrogenase*** of Mycobacterium marinum as antigen for use in tuberculosis vaccines)

L8 ANSWER 10 OF 13 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN DUPLICATE 5

AN 1998:167426 BIOSIS <<LOGINID::20080329>>

DN PREV199800167426

TI Extracellular enzyme activities potentially involved in the pathogenicity of Mycobacterium tuberculosis.

AU Raynaud, Catherine; Etienne, Gilles; Peyron, Pascale; Laneelle, Marie-Antoinette; Daffe, Mamadou [Reprint author]

CS Institut de Pharmacologie et de Biologie Structurale du CNRS, Universite Paul Sabatier, 205 route de Narbonne, 31077 Toulouse Cedex, France

SO Microbiology (Reading), (Feb., 1998) Vol. 144, No. 2, pp. 577-587. print. ISSN: 1350-0872.

DT Article

LA English

ED Entered STN: 6 Apr 1998
Last Updated on STN: 6 Apr 1998

AB To evaluate the potential contribution of extracellular enzymes to the pathogenicity of mycobacteria, the presence of selected enzyme activities was investigated in the culture filtrates of the obligate human pathogen Mycobacterium tuberculosis, M. bovis ***BCG*** , the opportunistic pathogens M. kansasii and M. fortuitum, and the non-pathogenic species M. phlei and M. smegmatis. For M. tuberculosis and M. bovis, 22 enzyme activities were detected in the culture filtrates and/or cell surfaces, of which eight were absent from the culture fluids of non-pathogens: ***alanine*** ***dehydrogenase*** , glutamine synthetase, nicotinamidase, isonicotinamidase, superoxide dismutase, catalase, peroxidase and alcohol dehydrogenase. These activities, which correspond to secreted enzymes, formed a significant part (up to 92%) of the total enzyme activities of the bacteria and were absent from the culture fluids and the cell surfaces of the non-pathogenic species M. smegmatis and M. phlei. The extracellular location of superoxide dismutase and glutamine synthetase seemed to be restricted to the obligate pathogens examined. The difference in the enzyme profiles was not attributable to the growth rates of the two groups of bacteria. The presence of the eight enzyme activities in the outermost compartments of obligate pathogens and their absence in those of non-pathogens provides further evidence that these enzymes may be involved in the pathogenicity of mycobacteria. In addition, the eight enzyme activities were demonstrated in the cell extract of M. smegmatis. Stepwise erosion of the cell surface of M.

smegmatis to expose internal capsular constituents showed that the various enzyme activities, with the possible exception of superoxide dismutase, were located more deeply in the cell envelope of this bacterium. This suggests that the molecular architecture of the mycobacterial envelopes may play an important role in the pathogenicity of these organisms.

AB. . . presence of selected enzyme activities was investigated in the culture filtrates of the obligate human pathogen Mycobacterium tuberculosis, M. bovis ***BCG*** , the opportunistic pathogens M. kansasii and M. fortuitum, and the non-pathogenic species M. phlei and M. smegmatis. For M. tuberculosis. . . were detected in the culture filtrates and/or cell surfaces, of which eight were absent from the culture fluids of non-pathogens: ***alanine*** ***dehydrogenase*** , glutamine synthetase, nicotinamidase, isonicotinamidase, superoxide dismutase, catalase, peroxidase and alcohol dehydrogenase. These activities, which correspond to secreted enzymes, formed a. . .

L8 ANSWER 11 OF 13 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN DUPLICATE 6

AN 1995:64955 BIOSIS <<LOGINID::20080329>>

DN PREV199598079255

TI Isolation of a 43 kDa protein from Mycobacterium tuberculosis H 3 7Rv and its identification as a pyridine nucleotide transhydrogenase.

AU Deshpande, R. G.; Khan, M. B.; Bhat, D. A.; Navalkar, R. G. [Reprint author]

CS Dep. Microbiol. Immunol., Morehouse Sch. Med., 720 Westview Drive, Atlanta, GA 30310, USA

SO Journal of Applied Bacteriology, (1994) Vol. 77, No. 6, pp. 639-643. CODEN: JABAA4. ISSN: 0021-8847.

DT Article

LA English

ED Entered STN: 8 Feb 1995
Last Updated on STN: 9 Feb 1995

AB A 43 kDa protein (TB43) was isolated from the cell sonicate (CS) of Mycobacterium tuberculosis H-37Rv with immobilized metal affinity chromatography (IMAC) on a Ni-nitrilotriacetic acid column. Two-dimensional electrophoresis of the IMAC fraction showed a major spot with an M-r of 43 000 and a pl of apprx 6.0. The N-terminal amino acid sequence of TB43 was met-arg-val-gly-ile-pro-asn-glu-thr-lys-asn-asn-glu-phe-arg-val-ala-ile-thr-pro-ala. It showed 86% homology with the N-terminal end of the ***alanine*** ***dehydrogenase*** of Myco. tuberculosis and 65% homology with the N-terminal end of the alpha-subunit of the Escherichia coli pyridine nucleotide transhydrogenase (Tsh). TB43 did not show any ***alanine*** ***dehydrogenase*** activity and did not react with monoclonal antibody (MAb) HBT10, which is known to recognize the 40 kDa ***alanine*** ***dehydrogenase*** of Myco. tuberculosis. It was also not recognized by MAb F29-29 which is known to react with a 43 kDa protein of Myco. tuberculosis complex. This protein exhibited strong Tsh activity. A similar 43 kDa protein showing Tsh activity was also isolated by IMAC from Myco. bovis CS. However, the pI of the protein was apprx 7.0. A similar protein could not be isolated from the CS or culture filtrate of Myco. bovis ***BCG*** and Myco. tuberculosis H-37Ra. TB43 is a cell-associated pyridine nucleotide transhydrogenase and is distinct from the 40/44 kDa secreted ***alanine*** ***dehydrogenase*** of Myco. tuberculosis.

AB. . . 6.0. The N-terminal amino acid sequence of TB43 was met-arg-val-gly-ile-pro-asn-glu-thr-lys-asn-asn-glu-phe-arg-val-ala-ile-thr-pro-ala. It showed 86% homology with the N-terminal end of the

alanine ***dehydrogenase*** of Myco. tuberculosis and 65% homology with the N-terminal end of the alpha-subunit of the Escherichia coli pyridine nucleotide transhydrogenase (Tsh). TB43 did not show any ***alanine*** ***dehydrogenase*** activity and did not react with monoclonal antibody (MAb) HBT10, which is known to recognize the 40 kDa ***alanine*** ***dehydrogenase*** of Myco. tuberculosis. It was also not recognized by MAb F29-29 which is known to react with a 43 kDa. . . protein was apprx 7.0. A similar protein could not be isolated from the CS or culture filtrate of Myco. bovis ***BCG*** and Myco. tuberculosis H-37Ra. TB43 is a cell-associated pyridine nucleotide transhydrogenase and is distinct from the 40/44 kDa secreted ***alanine*** ***dehydrogenase*** of Myco. tuberculosis.

L8 ANSWER 12 OF 13 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN DUPLICATE 7

AN 1992:391197 BIOSIS <<LOGINID::20080329>>

DN PREV199294063372; BA94:63372

TI STRUCTURE AND FUNCTION OF A 40000-MOLECULAR-WEIGHT PROTEIN ANTIGEN OF MYCOBACTERIUM-TUBERCULOSIS.

AU ANDERSEN A B [Reprint author]; ANDERSEN P; LJUNGQVIST L

CS MYCOBACTERIA DEP, SECTOR BIOTECHNOL, STATENS SERUMINSTITUT, ARTILLERIVEJ 5, DK 2300 COPENHAGEN S, DENMARK

SO Infection and Immunity, (1992) Vol. 60, No. 6, pp. 2317-2323. CODEN: INFIBR. ISSN: 0019-9567.

DT Article

FS BA

LA ENGLISH

OS GENBANK-X63069

ED Entered STN: 24 Aug 1992
Last Updated on STN: 1 Oct 1992

AB A gene encoding a protein antigen from Mycobacterium tuberculosis with a molecular weight of 40,000 has been sequenced. On the basis of sequence homology and functional analyses, we demonstrated that the protein is an L- ***alanine*** ***dehydrogenase*** (EC 1.4.1.1.). The enzyme was demonstrated in M. tuberculosis and Mycobacterium marinum but not in Mycobacterium bovis ***BCG*** . The enzyme may play a role in cell wall synthesis because L-alanine is an important constituent of the peptidoglycan layer. Although no consensus signal sequence was identified, we found evidence which suggests that the enzyme is secreted across the cell membrane. The enzyme was characterized and purified by chromatography, thus enabling further studies of its role in virulence and interaction with the immune system of M. tuberculosis-infected individuals.

AB. . . 40,000 has been sequenced. On the basis of sequence homology and functional analyses, we demonstrated that the protein is an L- ***alanine*** ***dehydrogenase*** (EC 1.4.1.1.). The enzyme was demonstrated in M. tuberculosis and Mycobacterium marinum but not in Mycobacterium bovis ***BCG*** . The enzyme may play a role in cell wall synthesis because L-alanine is an important constituent of the peptidoglycan layer.. . .

IT Sequence Data
X63069: GENBANK

IT Miscellaneous Descriptors
MYCOBACTERIUM-MARINUM L ***ALANINE*** ***DEHYDROGENASE*** EC 1.4.1.1 CELL WALL SYNTHESIS HOMOLOGY VIRULENCE FACTOR NUCLEOTIDE SEQUENCE AMINO ACID SEQUENCE MOLECULAR SEQUENCE DATA GENBANK-X63069 EMBL-X63069 DDBJ-X63069

RN 384447-46-5 (GENBANK-X63069)
9029-06-5 (L- ***ALANINE*** ***DEHYDROGENASE***)
9029-06-5 (EC 1.4.1.1)
140102-58-5 (GENBANK-X63069)

L8 ANSWER 13 OF 13 CAPLUS COPYRIGHT 2008 ACS on STN
AN 1973:54231 CAPLUS <<LOGINID::20080329>>
DN 78:54231
OREF 78:8585a,8588a
TI Amination and transamination processes in cell-free extracts of tuberculosis myobacteria
AU Gorodisskaya, G. Ya.; Karyakina, L. A.; Lazovskaya, A. L.; Uglanova, I. A.
CS Res. Inst. Epidemiol. Microbiol., Gorki, USSR
SO Ukrains'kii Biokhimichnii Zhurnal (1946-1977) (1972), 44(5), 653-6
CODEN: UBZHAZ; ISSN: 0372-3909
DT Journal
LA Russian
AB The alanine and glutamate dehydrogenase as well as aminotransferase activities were studied in exts. of 12 mycobacteria strains. The cell-free exts. of strains H37Ra, Privalov, Kekin, 2417, Kansas, and Batty differed essentially in their levels of ***alanine*** ***dehydrogenase*** activity. Intensive synthesis of alanine was found in the Akademia strain (7800 units/mg); the strains E-5, 2417, ***BCG*** , and Batty showed less of this activity (66-8 units/mg). No ***alanine*** ***dehydrogenase*** activity was detected in the cell-free ext. of strains DT, Vallee, and Vinogradov.
AB . . . mycobacteria strains. The cell-free exts. of strains H37Ra, Privalov, Kekin, 2417, Kansas, and Batty differed essentially in their levels of ***alanine*** ***dehydrogenase*** activity. Intensive synthesis of alanine was found in the Akademia strain (7800 units/mg); the strains E-5, 2417, ***BCG*** , and Batty showed less of this activity (66-8 units/mg). No ***alanine*** ***dehydrogenase*** activity was detected in the cell-free ext. of strains DT, Vallee, and Vinogradov.
ST amination process tuberculosis myobacteria; transamination process tuberculosis myobacteria; ***alanine*** ***dehydrogenase*** tuberculosis myobacteria

=> s BCG and (glutamine synthetase)
L9 31 BCG AND (GLUTAMINE SYNTHETASE)

=> dup rem l9
PROCESSING COMPLETED FOR L9
L10 15 DUP REM L9 (16 DUPLICATES REMOVED)

=> d bib ab kwic 1-
YOU HAVE REQUESTED DATA FROM 15 ANSWERS - CONTINUE? Y/(N):y

L10 ANSWER 1 OF 15 CAPLUS COPYRIGHT 2008 ACS on STN
AN 2007:564561 CAPLUS <<LOGINID::20080329>>
DN 147:8384
TI Improving antigen delivery and presentation using intracellular bacteria by limiting anti-apoptotic bacterial activities in infected cells
IN Kernodle, Douglas S.
PA Vanderbilt University, USA; The United States Government as Represented by Department of Veteran's Affairs
SO PCT Int. Appl., 181pp.

CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2007059256	A2	20070524	WO 2006-US44429	20061115

PI
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

PRAI US 2005-737525P P 20051115

AB Whole-cell vaccines and methods for increasing the immunogenicity of cellular microorganisms for induction of a protective immune responses in vertebrate hosts are described. Cells used in these vaccines may be used to present antigens foreign to them to induce responses against other infectious agents or cancer cells. The present invention involves an addnl. method of improving antigen presentation by intracellular bacteria in a manner that improves vaccine efficacy. After identifying an enzyme that has an anti-apoptotic effect upon host cells infected by an intracellular microbe, the activity of the enzyme produced by the intracellular microbe is reduced by expressing a mutant copy of the enzyme, thereby modifying the microbe so that it increases immunogenicity. Use of dominant-neg. mutants of the sodA gene for superoxide dismutase of Mycobacterium ***BCG*** to improve immunogenicity is described.

AB . . . the microbe so that it increases immunogenicity. Use of dominant-neg. mutants of the sodA gene for superoxide dismutase of Mycobacterium ***BCG*** to improve immunogenicity is described.

IT Actinobacillus pleuropneumoniae
Bacillus anthracis
Brucella
Campylobacter
Chlamydia pneumoniae
Chlamydia trachomatis
Chlamydophila psittaci
Coxiella burnetii
Ehrlichia
Ehrlichia ruminantium
Escherichia coli
Haemophilus
Haemophilus ducreyi
Haemophilus influenzae
Legionella
Legionella pneumophila
Listeria ivanovii
Listeria monocytogenes
Mannheimia haemolytica
Mycobacterium ***BCG***
Mycobacterium africanum

Mycobacterium avium
Mycobacterium avium paratuberculosis
Mycobacterium intracellulare
Mycobacterium kansasii
Mycobacterium marinum
Mycobacterium tuberculosis
Mycobacterium ulcerans
Neisseria gonorrhoeae
Neisseria meningitidis
Nocardia
Nocardia asteroides
Pasteurella
Pasteurella multocida
Pseudomonas
Pseudomonas aeruginosa
Rickettsia
Salmonella
Salmonella typhi
Shigella
Staphylococcus aureus
Staphylococcus epidermidis
Streptococcus agalactiae
Streptococcus pyogenes
Vibrio cholerae
Yersinia
Yersinia enterocolitica
Yersinia pestis
(improving antigenicity of; improving antigen delivery and presentation using intracellular bacteria by limiting anti-apoptotic bacterial activities in infected cells)

IT Brucella melitensis
(lumazine synthase of, gene for, expression in Mycobacterium ***BCG*** of; improving antigen delivery and presentation using intracellular bacteria by limiting anti-apoptotic bacterial activities in infected cells)

IT 9023-70-5, ***Glutamine*** ***synthetase*** 9054-89-1, Superoxide dismutase
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(dominant-neg. variants of, in improving bacterial immunogenicity; improving antigen delivery and presentation using intracellular bacteria by limiting anti-apoptotic bacterial activities in infected cells)

IT 119799-51-8, Lumazine synthase
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(gene for, of Brucella, expression in Mycobacterium ***BCG*** of; improving antigen delivery and presentation using intracellular bacteria by limiting anti-apoptotic bacterial activities in infected cells)

L10 ANSWER 2 OF 15 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN
AN 2007:422589 BIOSIS <<LOGINID::20080329>>
DN PREV200700426324
TI An improved strategy for selective and efficient enrichment of integral plasma membrane proteins of mycobacteria.
AU Mattow, Jens [Reprint Author]; Siejak, Frank; Hagens, Kristine; Schmidt,

Frank; Koehler, Christian; Treumann, Achim; Schaible, Ulrich E.; Kaufmann, Stefan H. E.

CS Max Planck Inst Infect Biol, Dept Immunol, Schumannstr,21-22, D-10117 Berlin, Germany
mattow@mpiib-berlin.mpg.de

SO Proteomics, (MAY 2007) Vol. 7, No. 10, pp. 1687-1701.
ISSN: 1615-9853.

DT Article

LA English

ED Entered STN: 8 Aug 2007
Last Updated on STN: 8 Aug 2007

AB Mycobacterial plasma membrane proteins play essential roles in many cellular processes, yet their comprehensive proteomic profiling remains challenging. This is mainly due to obstacles related to their extraction and solubilization. To tackle this problem, we have developed a novel procedure to selectively enrich mycobacterial. plasma membrane proteins based on alkaline sodium carbonate washing of crude membranes followed by Triton X-114 phase partitioning. The present study assesses the efficiency of this method by proteome analysis of plasma membrane proteins from Mycobacterium bovis ***BCG*** . Extracted proteins were separated in parallel by 1-D SDS-PAGE and 2-DE and then analyzed by LC-MS/MS and MALDI-MS/MS. Our study revealed 125 proteins, of which 54 contained 1-14 predicted transmembrane domains (TMD) including nine novel proteins. The 1-D SDS-PAGE-based proteome analysis identified 81 proteins, of which 49 (60.5%) harbored TMD. This approach also revealed many hydrophobic membrane-associated/periplasmic proteins lacking TMD, but only few soluble proteins. The identified proteins were characterized with regard to biological functions and physicochemical properties providing further evidence for the high efficiency of the prefractionation. method described herein.

AB. . . partitioning. The present study assesses the efficiency of this method by proteome analysis of plasma membrane proteins from Mycobacterium bovis ***BCG*** . Extracted proteins were separated in parallel by 1-D SDS-PAGE and 2-DE and then analyzed by LC-MS/MS and MALDI-MS/MS. Our study. . .

IT . . .
Biology); Biochemistry and Molecular Biophysics

IT Parts, Structures, & Systems of Organisms
plasma membrane

IT Chemicals & Biochemicals
Triton X-114; ***glutamine*** ***synthetase*** [EC 6.3.1.2]; plasma membrane protein; enoyl-CoA hydratase [EC 4.2.1.17]; periplasmic protein; NADH dehydrogenase I; histone-like protein; superoxide dismutase; UDP-galactopyranose; malate. . .

RN 9002-93-1 (Triton X-114)
9023-70-5 (***glutamine*** ***synthetase***)
9023-70-5 (EC 6.3.1.2)
9027-13-8 (enoyl-CoA hydratase)
9027-13-8 (EC 4.2.1.17)
9054-89-1 (superoxide dismutase)
2956-16-3 (UDP-galactopyranose)
9013-48-3 (malate synthase)
9013-48-3 (EC 4.1.3.2)

. . .

L10 ANSWER 3 OF 15 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN
DUPLICATE 1

AN 2006:646480 BIOSIS <<LOGINID::20080329>>
DN PREV200600633287
TI Protection elicited by two glutamine auxotrophs of Mycobacterium tuberculosis and in vivo growth phenotypes of the four unique ***glutamine*** ***synthetase*** mutants in a murine model.
AU Lee, Sunhee; Jeon, Bo-Young; Bardarov, Svetoslav; Chen, Mei; Morris, Sheldon L.; Jacobs, William R. Jr. [Reprint Author]
CS Albert Einstein Coll Med, Howard Hughes Med Inst, 1300 Morris Pk Ave, Bronx, NY 10461 USA
jacobsw@hhmi.org
SO Infection and Immunity, (NOV 2006) Vol. 74, No. 11, pp. 6491-6495.
CODEN: INFIBR. ISSN: 0019-9567.
DT Article
LA English
ED Entered STN: 22 Nov 2006
Last Updated on STN: 22 Nov 2006
AB We generated four individual ***glutamine*** ***synthetase*** (GS) mutants (Delta gInA1, Delta glnA2, Delta glnA3, and Delta glnA4) and one triple mutant (Delta glnAIEA2) of Mycobacterium tuberculosis to investigate the roles of GS enzymes. Subcutaneous immunization with the Delta glnA1EA2 and Delta glnA1 glutamine auxotrophic mutants conferred protection on C57BL/6 mice against an aerosol challenge with virulent M. tuberculosis, which was comparable to that provided by Mycobacterium bovis ***BCG*** vaccination.
TI Protection elicited by two glutamine auxotrophs of Mycobacterium tuberculosis and in vivo growth phenotypes of the four unique ***glutamine*** ***synthetase*** mutants in a murine model.
AB We generated four individual ***glutamine*** ***synthetase*** (GS) mutants (Delta gInA1, Delta glnA2, Delta glnA3, and Delta glnA4) and one triple mutant (Delta glnAIEA2) of Mycobacterium tuberculosis. . . on C57BL/6 mice against an aerosol challenge with virulent M. tuberculosis, which was comparable to that provided by Mycobacterium bovis ***BCG*** vaccination.
IT Major Concepts
Pharmacology; Enzymology (Biochemistry and Molecular Biophysics)
IT Chemicals & Biochemicals
glutamine; ***glutamine*** ***synthetase*** [EC 6.3.1.2]; ***BCG*** vaccine: immunologic-drug, immunostimulant-drug
RN 6899-04-3 (glutamine)
9023-70-5 (***glutamine*** ***synthetase***)
9023-70-5 (EC 6.3.1.2)

L10 ANSWER 4 OF 15 MEDLINE on STN
AN 2005150071 MEDLINE <<LOGINID::20080329>>
DN PubMed ID: 15780437
TI Protective immunity against Mycobacterium bovis induced by vaccination with Rv3109c--a member of the esat-6 gene family.
AU Hogarth Philip J; Logan Karen E; Vordermeier H Martin; Singh Mahavir; Hewinson R Glyn; Chambers Mark A
CS TB Research Group, Veterinary Laboratories Agency Weybridge, New Haw, Addlestone, Surrey KT15 3NB, UK.. p.j.hogarth@vla.defra.gsi.gov.uk
SO Vaccine, (2005 Apr 8) Vol. 23, No. 20, pp. 2557-64.
Journal code: 8406899. ISSN: 0264-410X.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, NON-U.S. GOV'T)
LA English

FS Priority Journals
EM 200507
ED Entered STN: 23 Mar 2005
Last Updated on STN: 15 Jul 2005
Entered Medline: 14 Jul 2005
AB In a number of clinical studies the current TB vaccine, Mycobacterium bovis bacille Calmette-Guerin (***BCG***), has provided little or no protection against pulmonary tuberculosis in cattle and man. A new generation of vaccines is therefore required to replace or supplement ***BCG*** . Safety concerns surrounding a number of strategies make protein subunits an attractive approach. Moreover, novel prime-boost strategies based on primary immunisations with ***BCG*** are not only showing promise but also present a clear strategy for testing new TB vaccines in clinical studies. We report the evaluation of six protein vaccine candidates for their ability to induce protective immunity in a murine virulent M. bovis challenge model. One protein (Rv3019c) induced reproducibly significant protection in the spleen and lungs approaching that induced by ***BCG*** . Detailed analysis of antigen-specific T cell responses revealed that despite robust responses in the spleen and lungs of vaccinated mice, there was no correlation between these responses and the protective efficacy of the vaccine. Significantly, Rv3019c also stimulated IFN-gamma responses in PBMC from ***BCG*** vaccinated cattle, indicating its potential for use in a heterologous prime-boost strategy in conjunction with ***BCG*** in the target species.
AB In a number of clinical studies the current TB vaccine, Mycobacterium bovis bacille Calmette-Guerin (***BCG***), has provided little or no protection against pulmonary tuberculosis in cattle and man. A new generation of vaccines is therefore required to replace or supplement ***BCG*** . Safety concerns surrounding a number of strategies make protein subunits an attractive approach. Moreover, novel prime-boost strategies based on primary immunisations with ***BCG*** are not only showing promise but also present a clear strategy for testing new TB vaccines in clinical studies. We. . . M. bovis challenge model. One protein (Rv3019c) induced reproducibly significant protection in the spleen and lungs approaching that induced by ***BCG*** . Detailed analysis of antigen-specific T cell responses revealed that despite robust responses in the spleen and lungs of vaccinated mice,. . . correlation between these responses and the protective efficacy of the vaccine. Significantly, Rv3019c also stimulated IFN-gamma responses in PBMC from ***BCG*** vaccinated cattle, indicating its potential for use in a heterologous prime-boost strategy in conjunction with ***BCG*** in the target species.
CT Check Tags: Female
Animals
*Antigens, Bacterial: GE, genetics
****BCG Vaccine: PD, pharmacology***
Bacterial Proteins
CD4-Positive T-Lymphocytes: IM, immunology
CD8-Positive T-Lymphocytes: IM, immunology
Cell Proliferation
Cell Separation
Cytokines: ME, metabolism
. . .
CN 0 (Antigens, Bacterial); 0 (***BCG*** Vaccine); 0 (Bacterial Proteins); 0 (Cytokines); 0 (ESAT-6 protein, Mycobacterium tuberculosis); 0 (Rv3109c vaccine); 0 (Vaccines, Subunit); EC 6.3.1.- (***glutamine*** ***synthetase*** I); EC 6.3.1.2 (Glutamate-Ammonia Ligase)

L10 ANSWER 5 OF 15 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN
DUPLICATE 2
AN 2004:306182 BIOSIS <<LOGINID::20080329>>
DN PREV200400307494
TI Adenylylation and catalytic properties of Mycobacterium tuberculosis ***glutamine*** ***synthetase*** expressed in Escherichia coli versus mycobacteria.
AU Mehta, Ranjana; Pearson, Josh T.; Mahajan, Sumit; Nath, Abhinav; Hickey, Mark J.; Sherman, David R.; Atkins, William M. [Reprint Author]
CS Dept Med Chem, Univ Washington, Seattle, WA, 98195, USA
winky@u.washington.edu
SO Journal of Biological Chemistry, (May 21 2004) Vol. 279, No. 21, pp. 22477-22482. print.
CODEN: JBCHA3. ISSN: 0021-9258.
DT Article
LA English
ED Entered STN: 7 Jul 2004
Last Updated on STN: 7 Jul 2004
AB Bacterial glutamine synthetases (GSs) are complex dodecameric oligomers that play a critical role in nitrogen metabolism, converting ammonia and glutamate to glutamine. Recently published reports suggest that GS from Mycobacterium tuberculosis (MTb) may be a therapeutic target (Harth, G., and Horwitz, M. A. (2003) Infect. Immun. 71, 456-464). In some bacteria, GS is regulated via adenylylation of some or all of the subunits within the aggregate; catalytic activity is inversely proportional to the extent of adenylylation. The adenylylation and deadenylylation of GS are catalyzed by adenylyl transferase (ATase). Here, we demonstrate via electrospray ionization mass spectrometry that GS from pathogenic M. tuberculosis is adenylylated by the Escherichia coli ATase. The adenylyl group can be hydrolyzed by snake venom phosphodiesterase to afford the unmodified enzyme. The site of adenylylation of MTb GS by the E. coli ATase is Tyr-406, as indicated by the lack of adenylylation of the Y406F mutant, and, as expected, is based on amino acid sequence alignments. Using electrospray ionization mass spectroscopy methodology, we found that GS is not adenylylated when obtained directly from MTb cultures that are not supplemented with glutamine. Under these conditions, the highly related but non-pathogenic Mycobacterium bovis ***BCG*** yields partially (dollar sign25%) adenylylated enzyme. Upon the addition of glutamine to the cultures, the MTb GS becomes significantly adenylylated (dollar sign30%), whereas the adenylylation of M. bovis ***BCG*** GS does not change. Collectively, the results demonstrate that MTb GS is a substrate for E. coli ATase, but only low adenylylation states are accessible. This parallels the low adenylylation states observed for GS from mycobacteria and suggests the intriguing possibility that adenylylation in the pathogenic versus non-pathogenic mycobacteria is differentially regulated.
TI Adenylylation and catalytic properties of Mycobacterium tuberculosis ***glutamine*** ***synthetase*** expressed in Escherichia coli versus mycobacteria.
AB. . . directly from MTb cultures that are not supplemented with glutamine. Under these conditions, the highly related but non-pathogenic Mycobacterium bovis ***BCG*** yields partially (dollar sign25%) adenylylated enzyme. Upon the addition of glutamine to the cultures, the MTb GS becomes significantly adenylylated (dollar sign30%), whereas the adenylylation of M. bovis ***BCG*** GS does not change. Collectively, the results demonstrate that MTb GS is a substrate for E. coli ATase, but

only. . .
IT Major Concepts
Enzymology (Biochemistry and Molecular Biophysics); Infection; Metabolism
IT Chemicals & Biochemicals
adenylyl transferase; ammonia; glutamate; glutamine; ***glutamine*** ***synthetase*** [EC 6.3.1.2]: catalytic properties, expression; nitrogen: metabolism
RN 9027-82-1 (adenylyl transferase)
7664-41-7 (ammonia)
11070-68-1 (glutamate)
56-85-9Q (glutamine)
6899-04-3Q (glutamine)
9023-70-5 (***glutamine*** ***synthetase***)
9023-70-5 (EC 6.3.1.2)
7727-37-9 (nitrogen)

L10 ANSWER 6 OF 15 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN
AN 2007:338335 BIOSIS <<LOGINID::20080329>>
DN PREV200700326336
TI Mycobacterium bovis ***BCG*** vaccines exhibit dysregulation of glutarnine synthetase in response to nitrogen availability.
AU Chen, J. M. [Reprint Author]; Alexander, D. C.; Behr, M. A.; Liu, J.
CS Univ Toronto, Toronto, ON, Canada
SO Abstracts of the General Meeting of the American Society for Microbiology, (2004) Vol. 104, pp. 639-640.
Meeting Info.: 104th General Meeting of the American-Society-for-Microbiology. New Orleans, LA, USA. May 23 -27, 2004. Amer Soc Microbiol.
ISSN: 1060-2011.
DT Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LA English
ED Entered STN: 30 May 2007
Last Updated on STN: 30 May 2007
TI Mycobacterium bovis ***BCG*** vaccines exhibit dysregulation of glutarnine synthetase in response to nitrogen availability.
IT . . .
(Biochemistry and Molecular Biophysics)
IT Diseases
Mycobacterium infection: bacterial disease, drug therapy
IT Chemicals & Biochemicals
nitrogen; vaccines: immunologic-drug, immunostimulant-drug; ***glutamine*** ***synthetase*** [EC 6.3.1.2]; snake venom phosphodiesterase
ORGN . . .
Mycobacteria; Actinomycetes and Related Organisms; Eubacteria; Bacteria; Microorganisms
Organism Name
Mycobacterium smegmatis (species)
Mycobacterium marinum (species)
Mycobacterium tuberculosis (species)
Mycobacterium bovis (species): pathogen, strain- ***BCG***
Taxa Notes
Bacteria, Eubacteria, Microorganisms
RN 7727-37-9 (nitrogen)
9023-70-5 (***glutamine*** ***synthetase***)
9023-70-5 (EC 6.3.1.2)

9025-82-5 (snake venom phosphodiesterase)
GEN. . . gene gene] (Mycobacteriaceae); Mycobacterium bovis sdaA gene [Mycobacterium bovis serine deaminase gene gene] (Mycobacteriaceae); Mycobacterium bovis glnA1 gene [Mycobacterium bovis ***glutamine*** ***synthetase*** gene gene] (Mycobacteriaceae); Mycobacterium tuberculosis glnK gene (Mycobacteriaceae); Mycobacterium tuberculosis gInD gene (Mycobacteriaceae); Mycobacterium tuberculosis gInE gene (Mycobacteriaceae)

L10 ANSWER 7 OF 15 CAPLUS COPYRIGHT 2008 ACS on STN
AN 2003:855955 CAPLUS <<LOGINID::20080329>>
DN 139:363579
TI Tuberculosis vaccines including recombinant Mycobacterium bovis-***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or ***glutamine*** ***synthetase***
IN Liu, Jun; Chen, Jeffrey; Alexander, David
PA Can.
SO PCT Int. Appl., 78 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003089462	A2	20031030	WO 2003-CA566	20030416
	WO 2003089462	A3	20040521		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	CA 2481108	A1	20031030	CA 2003-2481108	20030416
	AU 2003218838	A1	20031103	AU 2003-218838	20030416
	GB 2403477	A	20050105	GB 2004-25165	20030416
	GB 2403477	B	20060823		
	CN 1703513	A	20051130	CN 2003-802276	20030416
	JP 2006508633	T	20060316	JP 2003-586182	20030416
	ZA 2004008344	A	20050907	ZA 2004-8344	20041014
	US 2007264286	A1	20071115	US 2006-511718	20060728
PRAI	US 2002-372450P	P	20020416		
	WO 2003-CA566	W	20030416		

AB The invention relates to a live recombinant Mycobacterium bovis-***BCG*** strain comprising a nucleic acid capable of expression, the nucleic acid encoding at least one protein or polypeptide that exhibits alanine dehydrogenase activity, ***glutamine*** ***synthetase*** activity, or serine dehydratase activity. The recombinant alanine dehydrogenase, serine dehydratase and ***glutamine*** ***synthetase*** are derived from Mycobacterium tuberculosis.
TI Tuberculosis vaccines including recombinant Mycobacterium bovis-***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or ***glutamine*** ***synthetase***
AB The invention relates to a live recombinant Mycobacterium bovis-

BCG strain comprising a nucleic acid capable of expression, the nucleic acid encoding at least one protein or polypeptide that exhibits alanine dehydrogenase activity, ***glutamine*** ***synthetase*** activity, or serine dehydratase activity. The recombinant alanine dehydrogenase, serine dehydratase and ***glutamine*** ***synthetase*** are derived from Mycobacterium tuberculosis.

ST recombinant Mycobacterium bovis ***BCG*** strain tuberculosis vaccine; alanine dehydrogenase serine dehydratase ***glutamine*** ***synthetase*** ***BCG*** tuberculosis vaccine

IT Immunostimulants
(adjuvants; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or ***glutamine*** ***synthetase***)

IT Drug delivery systems
(carriers; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or ***glutamine*** ***synthetase***)

IT Proteins
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(recombinant; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or ***glutamine*** ***synthetase***)

IT Antitumor agents
Bladder, neoplasm
Bos taurus
Culture media
DNA sequences
Human
Mammalia
Molecular cloning
Mycobacterium
Mycobacterium ***BCG***
Mycobacterium tuberculosis
Pathogen
Protein sequences
Test kits
Tuberculosis
Vaccines
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or ***glutamine*** ***synthetase***)

IT Gene, microbial
Nucleic acids
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or ***glutamine*** ***synthetase***)

IT Antigens
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or ***glutamine*** ***synthetase***)

IT 619345-18-5P 619345-20-9P 619345-21-0P 619345-22-1P 619345-23-2P
619345-24-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(amino acid sequence; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or ***glutamine*** ***synthetase***)

IT 619345-19-6
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(amino acid sequence; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or ***glutamine*** ***synthetase***)

IT 619345-25-4P 619345-27-6P 619345-28-7P 619345-29-8P 619345-30-1P
619345-31-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(nucleotide sequence; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or ***glutamine*** ***synthetase***)

IT 619345-26-5, DNA (Mycobacterium bovis gene ald)
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(nucleotide sequence; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or ***glutamine*** ***synthetase***)

IT 7440-44-0, Carbon, biological studies 7727-37-9, Nitrogen, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(source; tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or ***glutamine*** ***synthetase***)

IT 9014-27-1P, Serine dehydratase 9023-70-5P, ***Glutamine*** ***synthetase*** 9029-06-5P, Alanine dehydrogenase 175380-16-2P, GenBank Z70692 193398-67-3P, GenBank Z97193 196526-70-2P, GenBank U87280 199902-12-0P, GenBank AL008883 202943-88-2P, GenBank AL021428 335511-06-3P, GenBank AE006919 335512-36-2P, GenBank AE007049 335512-60-2P, GenBank AE007073 335513-04-7P, GenBank AE007117
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or ***glutamine*** ***synthetase***)

IT 50-99-7, Dextrose, biological studies 56-41-7, L-Alanine, biological studies 56-45-1, L-Serine, biological studies 56-81-5, Glycerol, biological studies 71-00-1, L-Histidine, biological studies 77-92-9, Citric acid, biological studies 338-69-2, D-Alanine 7439-89-6, Iron, biological studies 7439-95-4, Magnesium, biological studies 14808-79-8, Sulfate, biological studies

RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(tuberculosis vaccines including recombinant Mycobacterium bovis- ***BCG*** strains expressing alanine dehydrogenase, serine dehydratase and/or ***glutamine*** ***synthetase***)

L10 ANSWER 8 OF 15 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN
DUPLICATE 3
AN 2003:127824 BIOSIS <<LOGINID::20080329>>
DN PREV200300127824
TI Mycobacterium bovis ***BCG*** vaccines exhibit defects in alanine and serine catabolism.
AU Chen, Jeffrey M.; Alexander, David C.; Behr, Marcel A.; Liu, Jun [Reprint Author]
CS Department of Medical Genetics and Microbiology, University of Toronto, 1 King's College Circle, 4382 Medical Sciences Building, Toronto, ON, M5S 1A8, Canada
jun.liu@utoronto.ca
SO Infection and Immunity, (February 2003) Vol. 71, No. 2, pp. 708-716. print.
ISSN: 0019-9567 (ISSN print).
DT Article
LA English
ED Entered STN: 5 Mar 2003
Last Updated on STN: 5 Mar 2003
AB Mycobacterium bovis ***BCG*** is the only accepted vaccine for the prevention of tuberculosis (TB) in humans. ***BCG*** is a live vaccine, and induction of immunity to TB requires productive infection of the host by ***BCG*** . However, ***BCG*** is not a satisfactory vaccine, because it fails to protect against pulmonary TB in adults. In this study, we found that ***BCG*** strains cannot utilize many naturally occurring amino acids as the sole nitrogen source for growth. This defect is caused, at least partially, by the lack of functional metabolic enzymes. All ***BCG*** strains are unable to catabolize L-alanine or D-alanine due to a frameshift mutation in the L-alanine dehydrogenase gene (ald). Some ***BCG*** strains, such as ***BCG*** -Pasteur and ***BCG*** -Frappier, cannot catabolize L-serine, apparently due to inadequate expression of L-serine deaminase (sdaA). We also found that undegraded alanine and serine inhibit the growth of ***BCG*** through blockage of ***glutamine*** ***synthetase*** . These results suggest that ***BCG*** strains are limited in nitrogen metabolic capacity and predict defects that may restrict multiplication and persistence of the live vaccine within the host.
TI Mycobacterium bovis ***BCG*** vaccines exhibit defects in alanine and serine catabolism.
AB Mycobacterium bovis ***BCG*** is the only accepted vaccine for the prevention of tuberculosis (TB) in humans. ***BCG*** is a live vaccine, and induction of immunity to TB requires productive infection of the host by ***BCG*** . However, ***BCG*** is not a satisfactory vaccine, because it fails to protect against pulmonary TB in adults. In this study, we found that ***BCG*** strains cannot utilize many naturally occurring amino acids as the sole nitrogen source for growth. This defect is caused, at least partially, by the lack of functional metabolic enzymes. All ***BCG*** strains are unable to catabolize L-alanine or D-alanine due to a frameshift mutation in the L-alanine dehydrogenase gene (ald). Some ***BCG*** strains, such as ***BCG*** -Pasteur and ***BCG*** -Frappier, cannot catabolize L-serine,

apparently due to inadequate expression of L-serine deaminase (sdaA). We also found that undegraded alanine and serine inhibit the growth of ***BCG*** through blockage of ***glutamine*** ***synthetase*** . These results suggest that ***BCG*** strains are limited in nitrogen metabolic capacity and predict defects that may restrict multiplication and persistence of the live vaccine. . .

IT . . .
disease
Tuberculosis, Pulmonary (MeSH)

IT Diseases
tuberculosis: bacterial disease
Tuberculosis (MeSH)

IT Chemicals & Biochemicals
D-alanine; L-alanine; L-alanine dehydrogenase; L-serine; Mycobacterium bovis ***BCG*** vaccines: immunologic-drug, immunostimulant-drug; ***glutamine*** ***synthetase*** [EC 6.3.1.2]

RN 338-69-2 (D-alanine)
56-41-7 (L-alanine)
9029-06-5 (L-alanine dehydrogenase)
56-45-1 (L-serine)
9023-70-5 (***glutamine*** ***synthetase***)
9023-70-5 (EC 6.3.1.2)

L10 ANSWER 9 OF 15 CAPLUS COPYRIGHT 2008 ACS on STN
AN 2002:615357 CAPLUS <<LOGINID::20080329>>
DN 137:184446
TI Attenuated bacteria having reduced anti-apoptotic enzyme activity to enhance immunogenicity and for use as vaccines against infectious diseases
IN Kernodle, Douglas S.; Bochan, Markian R.
PA Vanderbilt University, USA; The United States Government as Represented by the Department of Veteran's Affairs
SO PCT Int. Appl., 164 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002062298	A2	20020815	WO 2002-US3451	20020207
	WO 2002062298	A3	20030220		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	CA 2437596	A1	20020815	CA 2002-2437596	20020207
	AU 2002240269	A1	20020819	AU 2002-240269	20020207
	AU 2002240269	B2	20070621		
	EP 1361794	A2	20031119	EP 2002-706163	20020207
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2005504502	T	20050217	JP 2002-562306	20020207
	ZA 2003006058	A	20040602	ZA 2003-6058	20030806

	IN 2003DN01267	A	20050527	IN 2003-DN1267	20030811
	US 2004109875	A1	20040610	US 2004-467644	20040120
PRAI	US 2001-267328P	P	20010207		
	US 2001-322989P	P	20010918		
	WO 2002-US3451	W	20020207		

AB Whole-cell vaccines and methods for their use in producing protective immune responses in vertebrate hosts subsequently exposed to pathogenic bacteria. The present invention involves a method of enhancing antigen presentation by intracellular bacteria in a manner that improves vaccine efficacy. After identifying an enzyme that has an anti-apoptotic effect upon host cells infected by an intracellular microbe, the activity of the enzyme is reduced, thereby modifying the microbe so that it increases immunogenicity. Also, the present invention provides a method of incrementally modifying enzyme activity to produce incrementally attenuated mutants of the microbe from which an effective vaccine candidate can be selected.

IT Actinobacillus pleuropneumoniae
Bacillus anthracis
Brucella
Brucella melitensis
Campylobacter
Chlamydia
Chlamydia pneumoniae
Chlamydia trachomatis
Chlamydophila psittaci
Coxiella burnetii
Ehrlichia
Ehrlichia ruminantium
Escherichia coli
Eubacteria
Haemophilus
Haemophilus ducreyi
Haemophilus influenzae
Human
Immunodeficiency
Immunostimulation
Infection
Legionella
Legionella pneumophila
Listeria ivanovii
Listeria monocytogenes
Mammalia
Mannheimia haemolytica
Mutagenesis
Mycobacterium ***BCG***
Mycobacterium africanum
Mycobacterium avium
Mycobacterium avium paratuberculosis
Mycobacterium bovis
Mycobacterium intracellulare
Mycobacterium kansasii
Mycobacterium marinum
Mycobacterium tuberculosis
Mycobacterium ulcerans
Neisseria gonorrhoeae
Neisseria meningitidis
Nocardia

Nocardia asteroides
Pasteurella
Pasteurella multocida
Pseudomonas
Pseudomonas aeruginosa
Respiratory system
Rickettsia
Salmonella
Salmonella typhi
Shigella
Staphylococcus aureus
Staphylococcus epidermidis
Streptococcus agalactiae
Streptococcus pyogenes
Tuberculosis
Vaccines
Vibrio cholerae
Yersinia
Yersinia enterocolitica
Yersinia pestis
(attenuated bacteria having reduced anti-apoptotic enzyme activity to enhance immunogenicity and for use as vaccines against infectious diseases)

IT 9023-70-5, ***Glutamine*** ***synthetase*** 9054-89-1, Superoxide dismutase
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(attenuated bacteria having reduced anti-apoptotic enzyme activity to enhance immunogenicity and for use as vaccines against infectious diseases)

L10 ANSWER 10 OF 15 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN DUPLICATE 4
AN 2002:600488 BIOSIS <<LOGINID::20080329>>
DN PREV200200600488
TI Production of avirulent mutants of Mycobacterium bovis with vaccine properties by the use of illegitimate recombination and screening of stationary-phase cultures.
AU Collins, D. M. [Reprint author]; Wilson, T.; Campbell, S.; Buddle, B. M.; Wards, B. J.; Hotter, G.; De Lisle, G. W.
CS Wallaceville Animal Research Centre, AgResearch, PO Box 40063, Upper Hutt, New Zealand
desmond.collins@agresearch.co.nz
SO Microbiology (Reading), (October, 2002) Vol. 148, No. 10, pp. 3019-3027. print.
ISSN: 1350-0872.
DT Article
LA English
ED Entered STN: 20 Nov 2002
Last Updated on STN: 20 Nov 2002
AB A better tuberculosis vaccine is urgently required to control the continuing epidemic. Molecular techniques are now available to produce a better live vaccine than ***BCG*** by producing avirulent strains of the Mycobacterium tuberculosis complex with known gene deletions. In this study, 1000 illegitimate recombinants of Mycobacterium bovis were produced by illegitimate recombination with fragments of mycobacterial DNA containing a kanamycin resistance gene. Eight recombinant strains were selected on the basis of their inability to grow when stationary-phase

cultures were inoculated into minimal medium. Five of these recombinants were found to be avirulent when inoculated into guinea pigs. Two of the avirulent recombinants produced vaccine efficacy comparable to ***BCG*** against an aerosol challenge in guinea pigs with M. bovis. One of these recombinants had an inactivated glnA2 gene encoding a putative ***glutamine*** ***synthetase*** . Transcriptional analysis showed that inactivation of glnA2 did not affect expression of the downstream glnE gene. The other recombinant had a block of 12 genes deleted, including the sigma factor gene sigG. Two avirulent recombinants with an inactivated pckA gene, encoding phosphoenolpyruvate carboxykinase which catalyses the first step of gluconeogenesis, induced poor protection against tuberculosis. It is clear that live avirulent strains of the M. tuberculosis complex vary widely in their ability as vaccines to protect against tuberculosis. Improved models may be required to more clearly determine the difference in protective effect between ***BCG*** and potential new tuberculosis vaccines.

AB. . . is urgently required to control the continuing epidemic. Molecular techniques are now available to produce a better live vaccine than ***BCG*** by producing avirulent strains of the Mycobacterium tuberculosis complex with known gene deletions. In this study, 1000 illegitimate recombinants of. . . were found to be avirulent when inoculated into guinea pigs. Two of the avirulent recombinants produced vaccine efficacy comparable to ***BCG*** against an aerosol challenge in guinea pigs with M. bovis. One of these recombinants had an inactivated glnA2 gene encoding a putative ***glutamine*** ***synthetase*** . Transcriptional analysis showed that inactivation of glnA2 did not affect expression of the downstream glnE gene. The other recombinant had. . . vaccines to protect against tuberculosis. Improved models may be required to more clearly determine the difference in protective effect between ***BCG*** and potential new tuberculosis vaccines.

IT . . .
and Molecular Biophysics); Pharmacology

IT Diseases
tuberculosis: bacterial disease
Tuberculosis (MeSH)

IT Chemicals & Biochemicals
Mycobacterium bovis vaccine: immunologic-drug, immunostimulant-drug, vaccine; ***glutamine*** ***synthetase***

RN 9023-70-5 (***glutamine*** ***synthetase***)

L10 ANSWER 11 OF 15 CAPLUS COPYRIGHT 2008 ACS on STN
AN 2001:50676 CAPLUS <<LOGINID::20080329>>
DN 134:114829
TI Tuberculosis vaccine and diagnostics based on the Mycobacterium tuberculosis esat-6 gene family
IN Andersen, Peter; Skjot, Rikke
PA Statens Serum Institut, Den.
SO PCT Int. Appl., 80 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 10

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001004151	A2	20010118	WO 2000-DK398	20000713
	WO 2001004151	A3	20010712		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

	CA 2378763	A1	20010118	CA 2000-2378763	20000713
	AU 2000059664	A	20010130	AU 2000-59664	20000713
	AU 779495	B2	20050127		
	EP 1200466	A2	20020502	EP 2000-945660	20000713
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL				
	JP 2003510018	T	20030318	JP 2001-509760	20000713
	US 2004013685	A1	20040122	US 2001-872505	20010601
	AU 2002301509	A1	20030306	AU 2002-301509	20021010
	AU 2005201767	A1	20050519	AU 2005-201767	20050427
	AU 2006252186	A2	20070118	AU 2006-252186	20061221
	AU 2006252186	A1	20070118		
PRAI	DK 1999-1020	A	19990713		
	US 1999-144011P	P	19990715		
	DK 1997-1277	A	19971110		
	US 1998-70488P	P	19980105		
	AU 1998-94338	A3	19981008		
	WO 1998-DK438	W	19981008		
	US 1998-246191	B2	19981230		
	AU 2000-59664	A3	20000713		
	US 2000-615947	A2	20000713		
	WO 2000-DK398	W	20000713		
	US 2001-804980	A2	20010313		
	AU 2002-301509	A3	20021010		

AB The authors report the cloning and T-cell-stimulatory activity of members of the esat-6 gene family of Mycobacterium tuberculosis.

IT Mycobacterium ***BCG***
Mycobacterium africanum
Mycobacterium bovis
(fusion protein of ESAT-6 from M. tuberculosis and polypeptide fragment from)

IT 9002-13-5, Urease 9023-70-5, ***Glutamine*** ***synthetase*** 9029-06-5, L-Alanine dehydrogenase 9054-89-1, Superoxide dismutase
RL: ARG (Analytical reagent use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(fusion protein with ESAT-6 from Mycobacterium tuberculosis for vaccination and diagnosis)

L10 ANSWER 12 OF 15 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN DUPLICATE 5

AN 2002:138685 BIOSIS <<LOGINID::20080329>>

DN PREV200200138685

TI Purification and characterization of extracellular and intracellular glutamine synthetases from Mycobacterium bovis ***BCG*** .

AU Suh, Chang-Il; Lim, Jun-Man; Sung, Ha-Chin [Reprint author]

CS Graduate School of Biotechnology, Korea University, Seoul, 136-701, South Korea
hcsung@mail.korea.ac.kr

SO Journal of Microbiology and Biotechnology, (December, 2001) Vol. 11, No. 6, pp. 946-950. print.
ISSN: 1017-7825.
DT Article
LA English
ED Entered STN: 6 Feb 2002
Last Updated on STN: 26 Feb 2002
AB Slow-growing pathogenic mycobacterium species, including Mycobacterium bovis ***BCG*** , secrete a large amount of ***glutamine*** ***synthetase*** into culture media. Extracellular and intracellular glutamine synthetases were purified from M. bovis ***BCG*** . While the native molecular weights of both glutamine synthetases were estimated to be 370.2 kDa, those of the subunits were 61.7 kDa, indicating that the native forms were composed of 6 subunits. The enzymes showed a high thermal stability and high degree of sequence similarity with the ***glutamine*** ***synthetase*** from M. tuberculosis in the N-terminal amino acid sequence. Western blotting analysis indicated that the antibodies prepared against both the extracellular and intracellular enzymes exhibited common antigen determinants.
TI Purification and characterization of extracellular and intracellular glutamine synthetases from Mycobacterium bovis ***BCG*** .
AB Slow-growing pathogenic mycobacterium species, including Mycobacterium bovis ***BCG*** , secrete a large amount of ***glutamine*** ***synthetase*** into culture media. Extracellular and intracellular glutamine synthetases were purified from M. bovis ***BCG*** . While the native molecular weights of both glutamine synthetases were estimated to be 370.2 kDa, those of the subunits were. . . were composed of 6 subunits. The enzymes showed a high thermal stability and high degree of sequence similarity with the ***glutamine*** ***synthetase*** from M. tuberculosis in the N-terminal amino acid sequence. Western blotting analysis indicated that the antibodies prepared against both the. . .
ORGN . . .
Nonhuman Mammals, Rodents, Vertebrates
ORGN Classifier
Mycobacteriaceae 08881
Super Taxa
Mycobacteria; Actinomycetes and Related Organisms; Eubacteria; Bacteria; Microorganisms
Organism Name
BCG
Mycobacterium bovis: strain- ***BCG***
mycobacteria: pathogen, slow-growing
Taxa Notes
Bacteria, Eubacteria, Microorganisms

L10 ANSWER 13 OF 15 CAPLUS COPYRIGHT 2008 ACS on STN
AN 1998:684968 CAPLUS <<LOGINID::20080329>>
DN 129:300060
TI Novel antigens of Mycobacterium tuberculosis culture filtrates and the genes encoding and their diagnostic and prophylactic use
IN Andersen, Peter; Nielsen, Rikke; Rosenkrands, Ida; Weldingh, Karin; Rasmussen, Peter Birk; Oettinger, Thomas; Florio, Walter
PA Statens Serum Institut, Den.
SO PCT Int. Appl., 264 pp.
CODEN: PIXXD2
DT Patent
LA English

FAN.CNT 10

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9844119	A1	19981008	WO 1998-DK132	19980401
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	CA 2285625	A1	19981008	CA 1998-2285625	19980401
	AU 9868204	A	19981022	AU 1998-68204	19980401
	AU 740545	B2	20011108		
	EP 972045	A1	20000119	EP 1998-913536	19980401
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	JP 2001515359	T	20010918	JP 1998-541074	19980401
	EP 1449922	A2	20040825	EP 2004-76605	19980401
	EP 1449922	A3	20041117		
	EP 1449922	B1	20070815		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY				
	AT 370236	T	20070915	AT 2004-76605	19980401
	ES 2291810	T3	20080301	ES 2004-76605	19980401
	CA 2319380	A1	19990520	CA 1998-2319380	19981008
	WO 9924577	A1	19990520	WO 1998-DK438	19981008
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	EP 1029053	A1	20000823	EP 1998-947412	19981008
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	NZ 504951	A	20010629	NZ 1998-504951	19981008
	AU 750173	B2	20020711	AU 1998-94338	19981008
	EP 1484405	A1	20041208	EP 2004-77071	19981008
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY				
	AU 2002301509	A1	20030306	AU 2002-301509	20021010
	AU 2006252186	A2	20070118	AU 2006-252186	20061221
	AU 2006252186	A1	20070118		
PRAI	DK 1997-376	A	19970402		
	US 1997-44624P	P	19970418		
	DK 1997-1277	A	19971110		
	US 1998-70488P	P	19980105		
	EP 1998-913536	A3	19980401		
	WO 1998-DK132	W	19980401		
	AU 1998-94338	A3	19981008		
	EP 1998-947412	A3	19981008		
	WO 1998-DK438	W	19981008		
	AU 2002-301509	A3	20021010		

AB Culture filtrate antigens of Mycobacterium tuberculosis are characterized and cDNAs encoding them are cloned. Some of the proteins are antigenic and suitable for use in vaccines and in diagnosis of infections, e.g. skin tests. A fusion protein of two of these antigens is a superior immunogen compared to the unfused proteins. Individual antigens from culture filtrates were identified by T cell mapping using T cells from memory immune mice. Genes for individual antigens were then cloned by screening a .lambda.gt11 expression vector with monoclonal antibodies. Manuf. of individual antigens with hexahistidine affinity labels is described.

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Escherichia
Mycobacterium
Mycobacterium ***BCG***
Pseudomonas
Salmonella
(expression host for Mycobacterium tuberculosis antigen genes; novel antigens of Mycobacterium tuberculosis culture filtrates and genes encoding and their diagnostic and prophylactic use)

IT 151185-45-4, Protein (Mycobacterium ***BCG*** strain Tokyo ribosome)
208778-78-3 208782-67-6 208783-23-7 208783-90-8 208786-90-7
208788-06-1 208788-47-0 208790-41-4 208790-42-5 208853-48-9
208856-86-4 208857-49-2 208859-77-2 208863-45-0 208864-30-6
208865-40-1 208868-63-7 208871-19-6 208872-79-1 208874-21-9
208875-49-4 209053-74-7 210170-05-1 214348-60-4 214348-78-4
214348-84-2 214348-92-2 214349-12-9 214349-22-1 214349-24-3
214349-26-5 214349-38-9
RL: BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(amino acid sequence; novel antigens of Mycobacterium tuberculosis culture filtrates and genes encoding and their diagnostic and prophylactic use)

IT 9002-13-5D, Urease, fusion products 9023-70-5D, ***Glutamine*** ***synthetase*** , fusion products 9029-06-5D, Alanine dehydrogenase, fusion products 9054-89-1D, Superoxide dismutase, fusion products
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(as antigen of Mycobacterium tuberculosis; novel antigens of Mycobacterium tuberculosis culture filtrates and genes encoding and their diagnostic and prophylactic use)

L10 ANSWER 14 OF 15 CAPLUS COPYRIGHT 2008 ACS on STN
AN 1998:621228 CAPLUS <<LOGINID::20080329>>
DN 129:240866
TI Positive-selection cloning vectors using a resistance marker containing an intein sequence to identify open reading frames
IN Jacobs, William R.; Daugelat, Sabine
PA Albert Einstein College of Medicine of Yeshiva University, USA
SO PCT Int. Appl., 83 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9840394	A1	19980917	WO 1998-US4805	19980310

W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,

DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG

	US 5981182	A	19991109	US 1997-816721	19970313
	AU 9869389	A	19980929	AU 1998-69389	19980310
PRAI	US 1997-816721	A	19970313		
	WO 1998-US4805	W	19980310		

AB Cloning vectors that make use of the self-excising properties of inteins to identify open reading frames are described. An intein is excised from a larger protein providing certain minimal sequence requirements around the excision sites are met. The remainder of the intein may include a foreign protein. If the intein is introduced into a resistance marker, then successful self-excision will lead to the development of resistance. If a sequence that is not an open reading frame is cloned into the intein sequence, then the resistance marker product will not be formed and the organism carrying the sequence will be sensitive to the selective agent. The vectors include a cloning site in the intein coding region, and appropriate promoters and replication origins. The vector constructs of the present invention may contain DNA of interest cloned into a unique restriction site of the intein, and may be used as a vaccine alone or transformed into a vaccine vector. In particular, these vectors are intended for use in the cloning of sequences encoding protective antigens. The use of the intein of the Mycobacterium tuberculosis recA gene in the aph (kanamycin resistance gene) is demonstrated using Escherichia coli and Mycobacterium smegmatis as hosts. When the intein can be correctly spliced, a very large fraction (>75%) of cfu's are kanamycin resistant. In constructs designed to prevent excision of the intein, the frequency of kanamycin resistant cfu's fell to as low as 1 in 4.times.106 in E. coli and 1 in 3.times.108 in M. smegmatis. Further anal. showed that splicing efficiency was very dependent upon the site used for integration of the foreign sequence. Use of the method to clone open reading frames from well characterized genomes (mycobacteriophage L5, Haemophilus influenzae) is demonstrated.

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Mycobacterium ***BCG***
Mycobacterium microti
Mycobacterium tuberculosis
(intein of recA gene of; pos.-selection cloning vectors using resistance marker contg. intein sequence to identify open reading frames)

IT 9002-03-3D, Dihydrofolate reductase, intein-contg. precursors
9002-06-6D, Thymidine kinase, intein-contg. precursors 9012-49-1D, Aspartate transcarbamylase, intein-contg. precursors 9014-52-2D, Tryptophan synthetase, intein-contg. precursors 9016-12-0D, Hypoxanthine-guanine phosphoribosyltransferase, intein-contg. precursors
9023-69-2D, Asparagine synthetase, intein-contg. precursors 9023-70-5D, ***Glutamine*** ***synthetase*** , intein-contg. precursors
9024-60-6D, Ornithine decarboxylase, intein-contg. precursors
9024-93-5D, Dihydroorotase, intein-contg. precursors 9026-93-1D, Adenosine deaminase, intein-contg. precursors 9027-80-9D, Adenine phosphoribosyltransferase, intein-contg. precursors 9028-27-7D, Histidinol dehydrogenase, intein-contg. precursors 37233-48-0D, Carbamyl

phosphate synthase, intein-contg. precursors 37350-22-4D, Xanthine-guanine phosphoribosyltransferase, intein-contg. precursors 56941-28-7D, Aminoglycoside phosphotransferase, intein-contg. precursors 88361-67-5D, Hygromycin B phosphotransferase, intein-contg. precursors RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(in selection of antibiotic resistant clones; pos.-selection cloning vectors using resistance marker contg. intein sequence to identify open reading frames)

L10 ANSWER 15 OF 15 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN DUPLICATE 6
AN 1998:167426 BIOSIS <<LOGINID::20080329>>
DN PREV199800167426
TI Extracellular enzyme activities potentially involved in the pathogenicity of Mycobacterium tuberculosis.
AU Raynaud, Catherine; Etienne, Gilles; Peyron, Pascale; Laneelle, Marie-Antoinette; Daffe, Mamadou [Reprint author]
CS Institut de Pharmacologie et de Biologie Structurale du CNRS, Universite Paul Sabatier, 205 route de Narbonne, 31077 Toulouse Cedex, France
SO Microbiology (Reading), (Feb., 1998) Vol. 144, No. 2, pp. 577-587. print. ISSN: 1350-0872.
DT Article
LA English
ED Entered STN: 6 Apr 1998
Last Updated on STN: 6 Apr 1998
AB To evaluate the potential contribution of extracellular enzymes to the pathogenicity of mycobacteria, the presence of selected enzyme activities was investigated in the culture filtrates of the obligate human pathogen Mycobacterium tuberculosis, M. bovis ***BCG*** , the opportunistic pathogens M. kansasii and M. fortuitum, and the non-pathogenic species M. phlei and M. smegmatis. For M. tuberculosis and M. bovis, 22 enzyme activities were detected in the culture filtrates and/or cell surfaces, of which eight were absent from the culture fluids of non-pathogens: alanine dehydrogenase, ***glutamine*** ***synthetase*** , nicotinamidase, isonicotinamidase, superoxide dismutase, catalase, peroxidase and alcohol dehydrogenase. These activities, which correspond to secreted enzymes, formed a significant part (up to 92%) of the total enzyme activities of the bacteria and were absent from the culture fluids and the cell surfaces of the non-pathogenic species M. smegmatis and M. phlei. The extracellular location of superoxide dismutase and ***glutamine*** ***synthetase*** seemed to be restricted to the obligate pathogens examined. The difference in the enzyme profiles was not attributable to the growth rates of the two groups of bacteria. The presence of the eight enzyme activities in the outermost compartments of obligate pathogens and their absence in those of non-pathogens provides further evidence that these enzymes may be involved in the pathogenicity of mycobacteria. In addition, the eight enzyme activities were demonstrated in the cell extract of M. smegmatis. Stepwise erosion of the cell surface of M. smegmatis to expose internal capsular constituents showed that the various enzyme activities, with the possible exception of superoxide dismutase, were located more deeply in the cell envelope of this bacterium. This suggests that the molecular architecture of the mycobacterial envelopes may play an important role in the pathogenicity of these organisms.
AB. . . presence of selected enzyme activities was investigated in the culture filtrates of the obligate human pathogen Mycobacterium tuberculosis, M. bovis ***BCG*** , the opportunistic pathogens M.

kansasii and M. fortuitum, and the non-pathogenic species M. phlei and M. smegmatis. For M. tuberculosis. . . in the culture filtrates and/or cell surfaces, of which eight were absent from the culture fluids of non-pathogens: alanine dehydrogenase, ***glutamine*** ***synthetase*** , nicotinamidase, isonicotinamidase, superoxide dismutase, catalase, peroxidase and alcohol dehydrogenase. These activities, which correspond to secreted enzymes, formed a significant part. . . and the cell surfaces of the non-pathogenic species M. smegmatis and M. phlei. The extracellular location of superoxide dismutase and ***glutamine*** ***synthetase*** seemed to be restricted to the obligate pathogens examined. The difference in the enzyme profiles was not attributable to the. . .

IT Major Concepts
Bacteriology; Enzymology (Biochemistry and Molecular Biophysics); Infection

IT Diseases
tuberculosis: bacterial disease
Tuberculosis (MeSH)

IT Chemicals & Biochemicals
glutamine ***synthetase*** ; superoxide dismutase

RN 9023-70-5 (***glutamine*** ***synthetase***)
9054-89-1 (superoxide dismutase)

=> s BCG and (L-serine dehydratase)
L11 1 BCG AND (L-SERINE DEHYDRATASE)

=> d bib ab kwic

L11 ANSWER 1 OF 1 MEDLINE on STN
AN 2003033719 MEDLINE <<LOGINID::20080329>>
DN PubMed ID: 12540549
TI Mycobacterium bovis ***BCG*** vaccines exhibit defects in alanine and serine catabolism.
AU Chen Jeffrey M; Alexander David C; Behr Marcel A; Liu Jun
CS Department of Medical Genetics and Microbiology, University of Toronto, Ontario M5S 1A8, Canada.
SO Infection and immunity, (2003 Feb) Vol. 71, No. 2, pp. 708-16.
Journal code: 0246127. ISSN: 0019-9567.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, NON-U.S. GOV'T)
LA English
FS Priority Journals
OS GENBANK-AF531175; GENBANK-AF531176; GENBANK-AF531177
EM 200302
ED Entered STN: 24 Jan 2003
Last Updated on STN: 27 Feb 2003
Entered Medline: 26 Feb 2003
AB Mycobacterium bovis ***BCG*** is the only accepted vaccine for the prevention of tuberculosis (TB) in humans. ***BCG*** is a live vaccine, and induction of immunity to TB requires productive infection of the host by ***BCG*** . However, ***BCG*** is not a satisfactory vaccine, because it fails to protect against pulmonary TB in adults. In this study, we found that ***BCG*** strains cannot utilize many naturally occurring amino acids as the sole nitrogen source for growth. This defect is caused, at least partially, by the lack of functional

metabolic enzymes. All ***BCG*** strains are unable to catabolize L-alanine or D-alanine due to a frameshift mutation in the L-alanine dehydrogenase gene (ald). Some ***BCG*** strains, such as ***BCG*** -Pasteur and ***BCG*** -Frappier, cannot catabolize L-serine, apparently due to inadequate expression of L-serine deaminase (sdaA). We also found that undegraded alanine and serine inhibit the growth of ***BCG*** through blockage of glutamine synthetase. These results suggest that ***BCG*** strains are limited in nitrogen metabolic capacity and predict defects that may restrict multiplication and persistence of the live vaccine within the host.

TI Mycobacterium bovis ***BCG*** vaccines exhibit defects in alanine and serine catabolism.

AB Mycobacterium bovis ***BCG*** is the only accepted vaccine for the prevention of tuberculosis (TB) in humans. ***BCG*** is a live vaccine, and induction of immunity to TB requires productive infection of the host by ***BCG*** . However, ***BCG*** is not a satisfactory vaccine, because it fails to protect against pulmonary TB in adults. In this study, we found that ***BCG*** strains cannot utilize many naturally occurring amino acids as the sole nitrogen source for growth. This defect is caused, at least partially, by the lack of functional metabolic enzymes. All ***BCG*** strains are unable to catabolize L-alanine or D-alanine due to a frameshift mutation in the L-alanine dehydrogenase gene (ald). Some ***BCG*** strains, such as ***BCG*** -Pasteur and ***BCG*** -Frappier, cannot catabolize L-serine, apparently due to inadequate expression of L-serine deaminase (sdaA). We also found that undegraded alanine and serine inhibit the growth of ***BCG*** through blockage of glutamine synthetase. These results suggest that ***BCG*** strains are limited in nitrogen metabolic capacity and predict defects that may restrict multiplication and persistence of the live vaccine. . .

CT *Alanine: ME, metabolism
Alanine Dehydrogenase
Amino Acid Oxidoreductases: GE, genetics
Amino Acid Oxidoreductases: ME, metabolism
Animals
****BCG Vaccine***
*** BCG Vaccine: GE, genetics***
Cattle
Culture Media
Frameshift Mutation
Glutamate-Ammonia Ligase: AI, antagonists & inhibitors
*** L-Serine Dehydratase: GE, genetics***
*** L-Serine Dehydratase: ME, metabolism***
Molecular Sequence Data
*Mycobacterium bovis: EN, enzymology
*Mycobacterium bovis: GE, genetics
Mycobacterium bovis: GD, growth &. . .

CN 0 (***BCG*** Vaccine); 0 (Culture Media); EC 1.4.- (Amino Acid Oxidoreductases); EC 1.4.1.1 (Alanine Dehydrogenase); EC 4.3.1.17 (***L*** - ***Serine*** ***Dehydratase***); EC 6.3.1.2 (Glutamate-Ammonia Ligase)

=> S BCG and (medium(2w)serine)
L12 0 BCG AND (MEDIUM(2W) SERINE)

=> S BCG and (medium(2w)alanine)

```
L13          2 BCG AND (MEDIUM(2W) ALANINE)

=> dup rem l13
PROCESSING COMPLETED FOR L13
L14           2 DUP REM L13 (0 DUPLICATES REMOVED)

=> d bib ab kwic 1-
YOU HAVE REQUESTED DATA FROM 2 ANSWERS - CONTINUE? Y/(N):y

L14  ANSWER 1 OF 2  CAPLUS  COPYRIGHT 2008 ACS on STN
AN   1965:92797  CAPLUS <<LOGINID::20080329>>
DN   62:92797
OREF 62:16651a-b
TI   Biogenesis of the N-methyl group of pyocyanine
AU   Sheikh, N. M.; MacDonald, J. C.
CS   Natl. Res. Council Canada, Saskatoon
SO   Canadian Journal of Microbiology (1964), 10, 861-6
     CODEN: CJMIAZ; ISSN: 0008-4166
DT   Journal
LA   Unavailable
AB   Pseudomonas aeruginosa was grown in a   ***medium***   contg. L-
       ***alanine***  , glycerol, MgSO4, K2HPO4, FeSO4, L-serine, D-quinic acid,
     and distd. water.  Addn. of L-methionine-methyl-14C or L-serine-3-14C
     resulted in production of labeled pyocyanine.  The Me C atoms of
     methionine supplied 66% of the N-methyl C atoms of pyocyanine and were not
     incorporated to any extent into the rest of the pyocyanine mol.  This was
     true even when the strain of P. aeruginosa didn't require an exogenous
     source of methionine.  The labeled C atoms of serine-3-14C were
     incorporated to a lesser extent and less specifically into the N-methyl C
     atoms of pyrocyanine.
AB   Pseudomonas aeruginosa was grown in a   ***medium***   contg. L-
       ***alanine***  , glycerol, MgSO4, K2HPO4, FeSO4, L-serine, D-quinic acid,
     and distd. water.  Addn. of L-methionine-methyl-14C or L-serine-3-14C
     resulted in production of labeled.  .  .
IT   54-85-3, Isonicotinic acid, hydrazide
        (electrolyte metabolism by Mycobacterium   ***BCG***   and)

L14  ANSWER 2 OF 2  CAPLUS  COPYRIGHT 2008 ACS on STN
AN   1964:434495  CAPLUS <<LOGINID::20080329>>
DN   61:34495
OREF 61:6069a-b
TI   The occurrence of muramic acid in wax D preparations of mycobacteria
AU   Stewart-Tull, D. E. S.; White, R. G.
CS   London Hosp., UK
SO   Journal of General Microbiology (1964), 34, 43-9
     CODEN: JGMIAN; ISSN: 0022-1287
DT   Journal
LA   Unavailable
AB   Acid hydrolyzates of wax D prepns. from human and bovine strains of M.
     tuberculosis (grown for 4 weeks on Sauton   ***medium***  ) contained
       ***alanine***  , glutamic acid, and meso-.alpha.,.epsilon.-diaminopimelic
     acid.  Muramic acid was found in the wax from human strains but not in
     that from bovine strains.
AB   Acid hydrolyzates of wax D prepns. from human and bovine strains of M.
     tuberculosis (grown for 4 weeks on Sauton   ***medium***  ) contained
       ***alanine***  , glutamic acid, and meso-.alpha.,.epsilon.-diaminopimelic
     acid.  Muramic acid was found in the wax from human strains but not in
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that from. . .

IT Waxes or Waxy substances
(of Mycobacterium tuberculosis and M. tuberculosis ***BCG*** ,
muramic acid in D)